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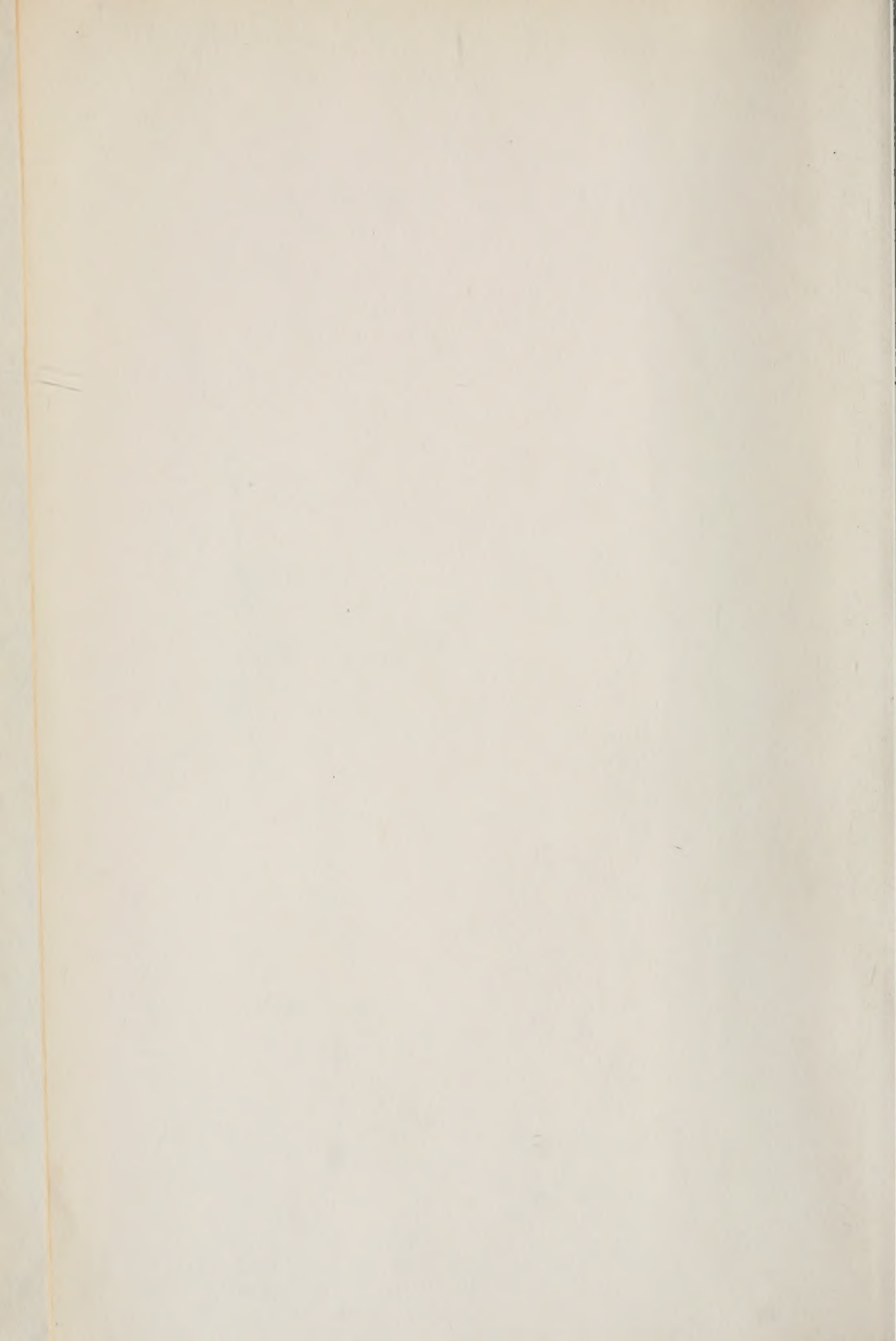


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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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G. L. Jordan, Editor

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CROP COSTS IN ILLINOIS IN 1942

The rising wages of farm labor had the effect of bringing the 1942 cost of growing and harvesting an acre of farm crops in Illinois to their highest point since 1929 in spite of the more general use of labor-saving

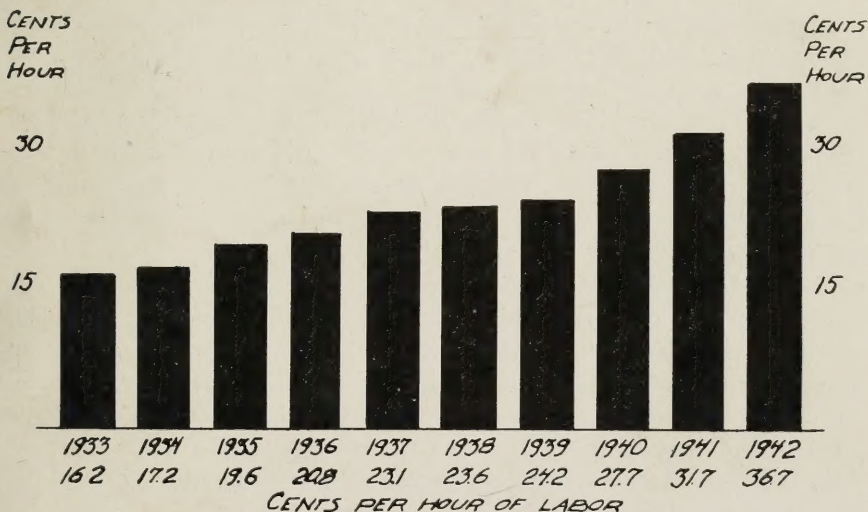


FIG. 1.—HIRED LABOR COST PER HOUR ON CHAMPAIGN AND PIATT COUNTY COST FARMS, 1933-1942

The high wages of farm labor in 1942 more than offset the effects on costs of the high crop yields and the improvements that had been brought about in the efficiency of crop production during the past 10 years.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

machines, such as the combine and corn-picker, by the year 1942. The high acre yields of all staple grain crops in 1942, except winter wheat, however, resulted in a relatively low cost per unit of these crops in the face of high acre costs.

For 22 years, a group of farmers in Champaign and Piatt counties in east-central Illinois has kept records of the cost of producing farm crops. In 1942 the farmers included in this cost study had farms which were about 85 acres larger than those owned by the average farmer in the area, secured somewhat higher crop yields and had better managed farms than did the average farmers in the two counties, and had lower costs than did many of their neighbors.

Weather conditions in east-central Illinois were favorable for all important field crops with the exception of winter wheat. Early frosts in late September caused some damage to the late-planted soybeans, and because of a wet fall the harvesting of corn and soybeans was delayed—some of it until the spring of 1943.

Man labor wage. In 1942, average monthly cash wages of farm laborers on the cost farms in Champaign and Piatt counties was \$54.70; and additional non-cash food, feed for milk cow and chickens, house, land for garden and other perquisites given farm labor amounted to \$27.00 a month at farm prices. This made the total monthly cost approximately \$82.00 per farm laborer. When the total hours that each hired man worked on these farms in 1942 was divided into his total cost while on the farm it showed the average hourly wage to be 36.7 cents. This was 32 percent above the wage level in 1940 (Fig. 1).

Corn. In 1942 in Champaign and Piatt counties, operating expenses¹ an acre of corn were \$14.22 after credit was given for stalk pasture. When land charges were added, the net cost of producing an acre of corn was \$20.94. In 1942 on farms included in the study, the yield per acre was 71.4 bushels, and the average cost per bushel 29.3 cents (Table 1). These figures may be compared with those for the five-year period 1932-1936 when yield per acre was 42 bushels and the average cost per bushel was 38.7 cents.

Oats. On the farms keeping cost records in 1942 the oat crop was combined on 65 percent of the oat land. The operating expenses for producing an acre of combined oats were \$6.63, and for producing an acre of threshed oats were \$10.62. When land charges were added, the net cost of producing an acre of combined oats was \$13.46 and of producing an acre of threshed oats was \$17.27. The yield of the combined oats an acre was 38 bushels, and the average cost per bushel was 35.4 cents. The yield

¹By operating expenses is meant all costs of production except interest on investment in land.

TABLE 1.—THE COST OF PRODUCING CROPS ON COST-ACCOUNT KEEPING FARMS IN CHAMPAIGN AND PIATT COUNTIES, ILLINOIS, 1942

Items	Corn	Combined Oats	Threshed Oats	Soybeans	Winter Wheat	Alfalfa Hay	Clover Hay	Soybean Hay
Growing cost per acre								
Man labor.....	\$1.74	\$.36	\$.47	\$1.06	\$.80	\$....	\$....	\$.86
Power, truck, and machinery.....	3.27	.77	1.54	2.01	2.05	.....	.....	1.82
Seed.....	1.00	1.58	1.72	3.59	2.55	1.00	.69	3.22
Fertilizer.....	1.41	.75	1.09	.....	.53	.62	.51	1.00
Other expenses.....	1.85	.65	1.49	1.05	.88	2.57	1.35	1.62
Total growing costs.....	\$9.27	\$4.11	\$6.31	\$8.50	\$6.81	\$....	\$....	\$8.52
Harvesting costs per acre								
Man labor.....	\$1.45	\$.69	\$2.68	\$.50	\$.43	\$5.36	\$2.86	\$5.03
Power, truck, and machinery.....	1.57	.54	1.28	.49	.38	6.64	2.98	4.55
Combine.....	.....	1.32	.....	1.28	.89	.....	.21	.....
Picker.....	.81	.....	.....	.....	.....	.....	.....	.....
Pickup baler ^a.....	.....	.....	.....	.....	.....	2.60	1.85	.....
Threshing and twine.....	.....	.....	* 1.35	.....	.....	.....	.....	.....
Total harvesting costs.....	\$3.83	\$2.55	\$5.31	\$2.27	\$1.70	\$....	\$....	\$9.58
Cost of growing and harvesting per acre.....	\$13.10	\$ 6.66	\$11.62	\$10.77	\$ 8.51	\$18.79	\$10.45	\$18.10
Taxes.....	1.49	1.47	1.54	1.50	1.72	1.57	1.35	1.54
Interest on land.....	6.72	6.83	6.65	6.71	5.78	6.54	6.81	6.73
Total cost per acre.....	\$21.31	\$14.96	\$19.81	\$18.98	\$16.01	\$26.90	\$18.61	\$26.37
Net cost per acre ^b	\$20.94	\$13.46	\$17.27	\$18.86	\$13.27	\$26.07	\$17.47	\$26.37
Total income per acre.....	\$51.78	\$18.20	\$25.33	\$41.56	\$17.45	\$40.37	\$20.24	\$16.10
Yield per acre, bushels or tons ^c	71.4	38.0	51.8	25.9	14.7	2.8	1.4	1.7
Net cost per bushel or ton.....	\$.293	\$.354	\$.333	\$.728	\$.902	\$9.38	\$12.75	\$15.56

^a62.3 percent of the alfalfa hay and 83.7 percent of the clover hay included in the cost figures was baled in the field with a pickup baler.

^bAfter deducting by-products, as straw and pasture for grain crops and seed for hay crops. For winter wheat \$2.06 an acre crop insurance, in addition to value of straw, was deducted to obtain net cost per acre.

^cYield per acre in obtaining unit costs was carried to two decimals.

of the threshed oats an acre was 51.8 bushels, or 13.8 bushels above that of combined oats. This difference in yield was not due to differences in methods of harvesting, but largely to the difference in soil productivity of the fields on the two groups of farms. Although the production cost per acre was higher for threshed oats than for combined oats, the yield of threshed oats per acre was so much higher than the yield of combined oats per acre that the production cost of the threshed oats was 2.1 cents below that for combined oats, or 33.3 cents per bushel.

Soybeans. The operating expenses for producing an acre of grain beans in 1942 was \$12.15. When land charges were added, the net cost of producing an acre of grain beans was \$18.86. The yield per acre was 25.9 bushels, and the average cost per bushel was 72.8 cents. The yield and quality of beans on some of the farms suffered from an extremely wet late fall and early winter. Those farmers who harvested their beans before the middle of November escaped the snow and wet weather which kept some combines out of the field until March and April of 1943.

Winter wheat. In east-central Illinois, the 1942 winter wheat crop was characterized by low acre yields. The cost farm with the highest wheat yield obtained only 18.4 bushels per acre. The average yield of

winter wheat in 1942 was 14.7 bushels an acre. The average operating expenses for producing an acre of wheat on all the farms in the study was \$7.49. When land charges were added, the net cost of producing an acre of wheat was \$13.27, and the average cost per bushel was 90.2 cents.

Alfalfa hay. In 1942 the net cost of the alfalfa crop per acre was \$26.07 when taxes and interest on land values were included and after a small credit for pasture had been deducted. The average yield per acre was 2.78 tons. The average cost of producing an acre of alfalfa hay in 1942 was \$9.38. The pickup baler was used in the field to bale 62.3 percent of the alfalfa hay produced on the farms in the study. The yield of hay per acre had more influence on the cost per ton than the method of harvesting, i.e., whether baled or put up loose.

Clover hay. The net cost of producing an acre of clover hay on farms in east-central Illinois in 1942 was \$17.47, this amount including a land charge of \$6.81. The yield per acre was 1.4 tons, the highest yield since 1935. To obtain the net cost of clover hay per acre, a credit of 73 cents was deducted from the gross cost for the value of seed harvested per acre in addition to 41 cents for pasture. The pickup baler was used in the field to bale 83.7 percent of the clover hay produced on the farms in the study.

Soybean hay. None of the farmers cut more than 2 or 3 mower widths around their soybean grain field and used these cuttings for hay. Therefore, in considering the cost of producing soybean hay, some credit should be allowed for the fact that cutting borders of soybean fields is as much a method of opening up grain fields for the combine as a method of producing hay. No such credit was given the soybean hay crop as it is doubtful how much credit should be allowed. In 1942 the operating expenses for growing an acre of soybean hay were \$19.64. When land charges were added, the cost of producing an acre of soybean hay was \$26.37. The yield per acre was 1.7 tons, and the average cost per ton was \$15.56.

Costs per acre and per bushel. Yields per acre had an important influence on the production costs per bushel or ton of crops grown in 1942. Although the high wages of farm labor and high yields per acre resulted in high costs per acre, the net cost per bushel or ton of the important farm crops was pulled down by high crop yields and was pushed up by high farm wages. The yield of corn in 1942 was so far above the previous 10-year average that the cost of producing corn in 1942 was 7 cents below the long-time average. The 1942 unit costs of the other crops were all above their previous 10-year average although all of them, with the exception of winter wheat, had higher yields per acre. High crop

yields and the improvement that has been brought about in the efficiency of crop production, even within the past 10 years, are, in the main, more than offset by present high farm wages. At the present time the intensive use of land and high yields are rapidly exhausting the soil, although no adequate charge was made for soil fertility removed by the crops.

R. H. WILCOX

IMPROVED FARM PRACTICES NECESSARY FOR MAXIMUM WARTIME PRODUCTION IN ILLINOIS

Farm account records from farms on similar land in the same community show over 100 percent variation in the total digestible nutrients produced per acre, thus reflecting the differences in practices. Production is affected by practices being carried out currently, but part of the variation is due to differences in practices which may have been followed over the past fifty years or longer. Variations in the returns from livestock show that attention to well-established, good practices is just as effective in increasing the earnings from livestock enterprises as from crops.

Need for improved practices. The acreages of crops which can be grown without irreparable damage to the soil, considering the use of land according to its capabilities, are rapidly reaching the maximum, and available feed supplies will not permit further expansion in total livestock production. The adoption of better farm practices which will increase the output per acre, per unit of feed, or per animal, offers the best means of achieving further increased production of essential foods and fiber during this wartime period. With the scarcity of labor and the lack of sufficient equipment and other supplies to carry on farming operations, many farmers are so occupied with day to day work that too little attention is given to farm practices which would add much to total production.

In order to secure the best returns, it is not only important for these practices to be carried out, but also, that this be done at the proper time. At present, many practices are used on some farms while on adjoining farms they have not yet been accepted. Various crop yields on most farms could be increased 10 to 50 percent if the improved practices were adopted.

Improved cropping practices. With the coming of mechanical power and equipment, practices in seedbed preparation and cultivation have become more and more standardized, even though a much more thorough job is being done on many farms than on others.

Soil improvement. There has been a rapid expansion in soil improvement practices such as applying limestone and rock phosphate. While time is needed to acquire the full benefit of the limestone-legume-phos-

phate rotation program, these practices should be carried out now in order to boost production and likewise to have the land in good condition for production in future years.

In the present emergency the use of superphosphate and other quick fertilizers is one of the most important means of boosting crop yields. While Illinois farmers have led in the use of limestone and rock phosphate, they have used proportionately less of the more readily available forms of fertilizer than many other states. Such a common practice as the wide use of available farm manures would do more than any other toward increasing wartime production on many farms. A year's delay in spreading farm manure not only postpones the results obtained from its use, but also causes a loss of much of its fertility.

Good care of the soil is basic to most of the other yield improvement practices. In addition, good seedbed preparation and cultivation at the proper time are practices which pay large dividends. Timeliness is one of the most important phases.

Conservation practices. At present, contour farming is a comparatively new practice in the corn belt and may materially increase our production. Because a high proportion of the cropland is now being planted in intertilled crops such as corn and soybeans, this type of farming is particularly important. During the past four years, studies made of individual farms in Illinois Soil Conservation Districts show, as a result of contour farming, an increase in yield of staple crops of from 10 to 25 percent over the yield of those crops planted in straight rows. This gain was due primarily to the conservation of moisture and the protection offered to the growing plant rather than to any immediate effect on the fertility of the land. At the same time, contouring has the long-time desired effect of conserving the soil.

It is probable that no other one practice, if generally adopted where needed, would result in as much added crop production as that of contour farming. Farm account records from each of 51 Illinois farms where crops were grown both on the contour and in straight rows showed the following yield advantages in favor of contouring: corn, 9.1 bushels; soybeans, 2.3 bushels; oats, 7.9 bushels. It is important to note that the records further showed the cost of operating the land farmed on the contour to be no greater.

On many farms, drainage is as effective as any other practice in increasing production. On some land the cost of draining may be met by saving of the crops in a single season of excessive rainfall.

Adapted varieties. A widespread use of adapted high yielding varieties of seed adds greatly to the production per acre, as has been well illustrated with hybrid seed corn. Likewise, marked increases in soybean

yields have resulted. With all crops, however, there is need of selecting varieties best adapted to various soil and climatic conditions. On most farms, selecting the proper variety of oats, wheat, red clover, or wilt-resistant alfalfa will likewise do much to increase the yields of these crops. It is not uncommon to find that the best adapted varieties will give a 25 percent yield increase over those commonly grown.

Pasture improvement. The adoption of a pasture improvement program (especially for old permanent pastures) offers one of the best possible means of increasing livestock production and the use of otherwise unmarketable feed. Under a good program of pasture improvement and management, many permanent pastures would double their present production. On many farms a good succession of animal forage crops and legume mixtures would afford a means of reducing the acres needed in pasture.

Improved livestock practices. Through the use of proper practices, many farms have even greater opportunities for increasing livestock production than for increasing crop production. A large number of farmers understand the importance of feeding livestock properly, but the present shortage of protein feeds does not permit as rapid an advancement in feeding techniques as is desirable. The more thoughtful farmers, however, are adjusting their cropping practices so as to make their farms more nearly self-sustaining from the standpoint of providing the pasture, hay, protein feed, and succulent crops needed for the most efficient production of livestock. Good legume forage crops, rye, Sudan, and other emergency pastures help replace protein feeds not available in sufficient quantities. In livestock production, the selection of the best animals, culling the inefficient animals, sanitation, vaccination, proper housing, and the isolation and treatment of sick animals, are factors needing constant attention.

Efficient management. With the urgency for increased food supplies, every phase of farm production needs to be kept at a high point of efficiency. This applies to machinery, equipment, and labor, as well as to crop and livestock practices. The individual farmer needs to work out in advance a schedule of farm practices to be used as a means of getting essential jobs completed at the proper time, thus aiding in securing maximum yield per acre, per unit of feed, and per animal, as well as economizing in the use of all production factors. With the burden of long working hours, there is danger that management will receive too little attention. Illustrations given here serve only as examples of practices needing constant attention. In each area of the state and in each type of farming area, there are many small practices which, while they seem insignificant in themselves, combine to account for the fact that some farms are twice as productive as others in the same community.

Facilities needed for adoption of practices. The adoption of improved practices which will facilitate the securing of maximum food production is dependent in large measure upon an adequate supply of labor, machinery, fencing, fertilizer, seed, buildings for housing livestock and feed, as well as other supplies. In order to get the best results, improved farm practices may require unusual amounts of labor performed at the proper time. Likewise, the availability of machinery, equipment, and other supplies of various kinds, not only facilitates the use of labor but frequently makes possible the carrying out of certain improved farm practices.

Many farm machines on Illinois farms have now so depreciated that in order to attain maximum production, normal replacements are necessary. In some cases additional equipment of a newer type is necessary. Larger farms have felt the shortage of labor most severely and are therefore in greater need of this additional equipment than are the smaller ones. Additional emphasis must be placed on providing necessary labor, machinery, equipment, and other supplies by early 1944 in order to enable farmers to meet the increased demand for agricultural products which the production program asks for that year.

Price relationships. Farm price relationships need immediate consideration and adjustment in order for relative prices of different farm products to reflect the national need, thus facilitating production necessary to carry out national objectives. Farmers have habitually been guided by price relationships in estimating the demand for farm products. Ceiling prices may fail to guide production properly unless they are carefully determined on the basis of needs for shifts in production.

With the growing shortage of labor, machinery, equipment, and other farm supplies, there is an increased need for farmers to appraise carefully their own productive resources and bring about adjustments in their farm production which will utilize these resources to the fullest capacity.

In conclusion, after determining the acreages of crops to be grown and the kinds and amounts of livestock to be produced, the greatest opportunity a farmer has for increasing production is following those practices which will bring about the largest results. This is difficult in wartime when there exists a shortage of labor and other supplies to maintain the production per acre, per unit of feed, and per animal, essentials for maintaining or increasing our production of human food.

However, in the urgent need for increased food supplies, much attention needs to be given to those farm practices which will bring immediate results in production increases of products seriously needed at present.

E. L. SAUER and H. C. M. CASE

**WHO HELD THE FARM OPERATORS' DEBTS,
MC HENRY COUNTY, ILLINOIS
1940 TO 1942**

The amount of and changes in farm operators indebtedness listed by the kind of holder of this credit is valuable in presenting a changing picture of the credit situation. Farm operators' credit records used were selected at random and included 122 records in 1940, 146 in 1941, and 118 in 1942. Data were divided by tenure and also by term of debt.

Who Held the Indebtedness

Owners and part-owners. On a per operator basis, the amount of debts was highest in 1941 but the differences between average debts in the three years were probably due to the difference in sampling. The total amount of debts of owners and part-owners and the percentage of this total held by the different classes of lenders were as follows:

	1940	1941	1942
Number of records	59	67	61
Total long-term debts	\$284 345	\$336 128	\$272 597
Percent of total held by:			
Federal Land Bank and Land Bank			
Commissioner	40.0	49.3	54.4
Individuals	31.6	20.0	10.7
Insurance companies	21.6	23.9	23.4
Commercial banks	3.1	4.1	3.8
Other sources	3.7	2.7	7.7

The Federal Land Bank and Land Bank Commissioner, individuals, and insurance companies were the important sources of long-term mortgage credit. The loans by Farm Credit Administration agencies were proportionally greater each year, increasing from 40 percent of the total in 1940 to 54.4 percent in 1942 while those of individuals dropped from 31.6 percent in 1940 to 10.7 percent in 1942.

Holders of short-term indebtedness of owners and part-owners for each year were as follows:

	1940	1941	1942
Total short-term debts	\$47 162	\$54 861	\$32 914
Percent of total held by:			
Commercial banks	39.1	44.1	25.3
Federal and cooperative agencies	15.5	16.8	20.1
Individuals	27.8	21.9	37.5
Dealers	8.4	13.3	11.8
Other sources	2.9	0	2.5
Items in arrears	6.3	3.9	2.8

Commercial banks, the Farm Security Administration, the Production Credit Association, individuals, and dealers held virtually all short-term credit of owners and part-owners for each year studied. Commercial banks

held the greatest proportion in 1940 and 1941 while individuals held the most in 1942.

Tenants. Holders of tenants' indebtedness were as follows:

	1940	1941	1942
Number of records.....	63	79	57
Total long-term debts.....	\$ 5 150	\$27 338	\$ 9 885
Total short-term debts.....	74 092	95 397	59 228
Percent of total held by:			
Commercial banks.....	24.6	18.5	18.9
Federal and cooperative agencies.....	31.2	28.1	22.2
Individuals.....	21.1	25.0	29.0
Dealers.....	20.2	26.3	29.6
Other sources.....	1.4	.5	.1
Items in arrears.....	1.5	1.6	.2

For the three years studied, commercial banks, the Farm Security Administration and the Production Credit Association, individuals including landlords, and dealers were about equally important as holders of tenant operators' short-term credit. Individuals and dealers, however, became increasingly important while commercial banks and the Farm Security Administration and Production Credit Association became decreasingly important from 1940 to 1942.

Changes in Debts

Owners and part-owners. Changes in farm operators' indebtedness by type of holder during each of the three years studied gives a picture of what took place. The total amount of change and the percentage of change in total long-term debts of owners and part-owners by type of holder during each year were as follows:

	1940	1941	1942
Change in total long-term debts.....	-\$14 293	-\$24 901	-\$43 205
Percentage changes in total.....	-4.8	-6.4	-13.7
Percentage changes held by:			
Federal Land Bank and Land Bank Commissioner.....	-7.7	-7.9	-7.5
Individuals.....	-1.6	-8.6	-27.5
Insurance companies.....	-1.3	-2.3	-11.8
Commercial banks.....	-9.9	-5.3	-31.8
Other sources.....	-4.9	-4.8	-24.8

Total long-term debts decreased during each year studied, the reduction being 4.8 percent of the total held in 1940, 6.4 percent in 1941, and 13.7 percent in 1942. The Federal Land Bank and Land Bank Commissioner and commercial banks had the greatest rate of decrease in 1940, 7.7 and 9.9 percent, respectively. In 1942 commercial banks had the largest percentage decrease, 31.8 percent and individuals were next with 27.5 percent. Federal Land Bank and Land Bank Commissioner had the lowest percentage decrease in 1942, 7.5 percent.

Changes in total short-term indebtedness of owners and part-owners

and the percent changes held by each type of holder in each year were as follows:

	1940	1941	1942
Change in total short-term debts.....	+ 6 375	-\$5 612	-\$12 565
Percentage changes in total	+15.6	-9.3	-27.6
Percentage changes held by:			
Commercial banks	-1.9	-6.4	-51.1
Federal and cooperative agencies.....	+31.4	+3.6	-21.4
Individuals.....	+10.1	-18.4	+4.5
Dealers.....	+66.1	+34.2	-33.0
Other sources.....	+121.4	-100.0	+160.8
Items in arrears.....	+97.2	-36.6	-55.9

These operators increased their short-term debts in 1940 by 15.6 percent and reduced them by 27.6 percent in 1942. Debts held by commercial banks, Production Credit Association and Farm Security Administration and dealers showed a significantly increased rate of reduction in 1942 over the previous years. Commercial banks were the only group to show a decrease during 1940 and individuals and other sources were the only groups to show an increase during 1942.

The change in all debts, long- and short-term combined, during each year of owners and part-owners showed a continuous decrease. The decreases averaged 2.3 percent in 1940, 6.8 percent in 1941, and 15.4 percent in 1942.

Tenants. Changes in debts of tenant operators during each of the years were as follows:

	1940	1941	1942
Changes in total, long-term debts	-\$ 226	+\$22 188	+\$4 885
Percentage change in total	-4.2	+430.8	+97.7
Changes in total short-term debts.....	+\$8 808	-\$207	-\$5 019
Percentage changes in total	+13.5	-.2	-7.8
Percentage changes held by:			
Commercial banks	+9.7	-34.8	-14.3
Federal and cooperative agencies.....	+13.9	+3.8	-25.3
Individuals.....	+14.2	+4.8	-21.0
Dealers.....	+12.7	+42.1	+56.6
Other sources.....	+52.1	-68.2	+88.2
Items in arrears.....	+53.9	+86.4	-90.6

There was a significant increase in long-term indebtedness of tenant operators in 1941, with a much smaller increase in 1942, due to land purchases. Tenants were expanding short-term debts from all sources in 1940 but the only source that continued to show a significant expansion through 1942 was dealers. It is well to remember that loans from dealers is perhaps the most inflationary kind of credit used by these farmers. Total short-term debts of tenant operators increased by 13.5 percent in 1940, were virtually stationary in 1941, and decreased by 7.8 percent in 1942.

All debts, long- and short-term debts combined, of tenants increased by 12.1 percent in 1940, by 21.8 percent in 1941, and decreased by .2 percent in 1942.

B. D. PARRISH

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	108	84	121	120	110
1930.....	86	88	112	124	114	92	74	110	98	91
1931.....	73	65	77	109	84	61	56	93	74	75
1932.....	65	48	52	95	60	45	48	72	51	58
1933.....	66	51	56	91	62	54	59	68	54	69
1934.....	75	65	76	99	73	58	58	79	70	75
1935.....	80	79	103	101	90	68	68	86	80	87
1936.....	81	81	107	99	104	86	87	98	93	103
1937.....	86	86	120	104	108	92	88	107	111	113
1938.....	79	69	87	98	99	85	87	101	85	89
1939.....	77	65	81	97	99	85	87	108	100	108
1940.....	78	68	86	98	107	94	96	118	114	123
1941.....	87	82	109	104	142	122	117	144	168	156
1942.....	99	105	140	118	197	166	141	187	242	181
1942 Aug. ...	99	106	143	119	204	134	113	193	255	183
Sept.	100	108	143	119	208	144	121	198	262	187
Oct.	100	109	145	120	211	271	226	205	271	191
Nov.	100	110	144	121	224	200	165	209	280	194
Dec.	101	114	148	122	226	191	157	215	288	197
1943 Jan.	102	117	156	124	224	176	142	215	291	199
Feb.	102	119	160	124	240	185	149	219	297	202
Mar.	103	123	164	125	260	212	170	224	305	202
Apr.	104	124	165	126	261	187	148	227	309	203
May	104	126	165	126	258	203	161	231	314	203
June	104	126	166	127	256	188	148	237	317	202
July	103 ¹¹	125	166	128	256 ¹¹	...	...	236	316 ¹¹	205 ¹¹
Aug.	103 ¹¹	124 ¹¹	167 ¹¹	128	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			Sept. 1942	Current months		
	1935-39	1941	1942		July	Aug.	Sept.
Corn, bu.....	\$.66	\$.63	\$.77	\$.80	\$1.02	\$1.02	\$1.01
Oats, bu.....	.31	.36	.48	.45	.67	.67	.73
Wheat, bu.....	1.86	.93	1.13	1.15	1.44	1.47	1.50
Barley, bu.....	.62	.55	.74	.73	1.01	1.04	1.09
Soybeans, bu.....	1.90	1.24	1.65	1.59	1.65	1.66	1.66
Hogs, cwt.....	8.52	9.37	13.37	13.90	13.50	14.10	14.40
Beef cattle, cwt.....	7.88	10.07	11.93	12.40	13.80	13.50	13.50
Lambs, cwt.....	8.36	9.85	12.28	12.20	13.60	12.90	12.70
Milk cows, head.....	58.00	80.00	102.00	105.00	130.00	128.00	130.00
Veal calves, cwt.....	8.66	11.19	13.63	14.10	14.50	14.60	14.40
Sheep, cwt.....	3.58	4.43	5.50	5.50	6.90	6.70	6.50
Butterfat, lb.....	.27	.33	.39	.41	.47	.47	.49
Milk, cwt.....	1.68	2.05	2.40	2.45	2.95	3.00	3.05 ¹¹
Eggs, doz.....	.19	.22	.29	.30	.34	.35	.36
Chickens, lb.....	.15	.15	.19	.20	.26	.26	.25
Wool, lb.....	.25	.37	.40	.41	.43	.43	.44
Apples, bu.....	1.08	1.07	1.53	1.30	2.50	2.50	2.50
Hay, ton.....	9.39	8.49	11.33	10.00	14.10	14.50	16.20
Potatoes, bu.....	.91	.82	1.32	1.15	2.25	2.00	1.85

¹⁻¹¹For sources of data in tables see previous issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

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LAND PRICE INCREASES AND SOME POLICY IDEAS

Farmland prices have increased to a point where there are many proposals for making land market activity less attractive. While examination of evidence of land price changes in the 1940s may lead some to conclude that there is no threat of a land boom, the last 18 months have witnessed more advance in amount per acre and in percentage in parts of Illinois, at least, than in the 18 months of the first World War.

Resales after the lapse of a few months have not been frequent. Excited repurchase by farmers at higher prices after selling at figures which seemed high a few months before are in little evidence. Any widespread appearance of that practice would be so reminiscent of the land boom as it developed following World War I that it would warrant steps not only to increase the income of public treasuries, but to protect the well-being of farmers and others in their investment provisions for their families and in their power to produce food and other products for the nation at war.

Enlarged capital gains on wartime realty speculations. The Federal Treasury is thought by some to be justified in wartime in tapping any tree that has a lot of sap running. In bidding up prices of real estate, rural or urban, it may be alleged that there is a flow of capital not necessarily to be exempted from paying tribute to a national treasury which at other times has been called upon to help prevent the real estate market from being unduly depressed. Let it be supposed that one's capital gains from a resale of real estate within 8 to 12 months are as large as might ordi-

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

narilly be expected in 12 to 22 years. In income tax reports, the gains from sales of real estate acquired 20 or more years ago are subject to deductions not applied to gains from sales short of that time. By the same token gains from sales of real estate acquired since Pearl Harbor could be subject to a higher rate. Where gains come much more rapidly than usual from properties producing rent or other annual income subject to increase as a result of the same world emergency food situation, the Federal Treasury may be justified in putting a higher tax rate on such capital gains as are actually pocketed on resales of property purchased after Pearl Harbor.

Such an action under Federal taxing powers might not prevent all quick resales of real estate. Its justification would probably be one of income for the Treasury than of reform of the land market. So far as it might forestall the need for bailing land speculators out of the troubles into which they may find themselves falling in the postwar period, it would have a beneficial effect on the Treasury after the war.

More far-reaching and more definitely of a reform character are some of the measures applied in several European countries in recent years. The countries for which information is at hand include enemy countries, an occupied country, and a neutral country. Publications of the International Institute of Agriculture have given basis for the following restatement of the content of these policies. In making this recital, the author is not necessarily urging that similar measures should or could be applied by our separate states and least of all by our Federal government which generally lacks power over real estate except where it holds title.

Germany controls land market closely. An extreme measure of control of the farmland market in Germany was started nearly three years before the invasion of Poland. Every contract for 5 acres or more was made subject to review by the government. This review was designed to ascertain whether one or more of five conditions existed.

- (1) Did the carrying out of the contract put at hazard the regular use of the property to the detriment of national food supplies?
- (2) Would the contract transfer the farm property to a person whose chief occupation was something other than farming?
- (3) Would a small unit be established in the new tract or in the remnant so that one or both units would be uneconomic for operating?
- (4) Would the contract reduce the economic independence of a farm by incorporating it in another farm?
- (5) Is the price considerably out of proportion to the value of the property?

Those who formulated this decree for Nazi Germany had an eye to helping food win a war for that country by keeping land out of the hands of

speculators and nonfarmers. In this view it had become no longer admissible that the price of land be influenced by artificial causes. Land must go only into the hands of those capable of increasing its yield. This plan was started in January 1937, on a four-year basis possibly with the hope that German victory would be established by January 1941.

Italians control primarily by taxes. Italy was one of three countries to establish in 1940 special controls over land transfers. By decree in June and by law in October of that year, efforts were made to check the growing tendency towards the investment of capital in the purchase of real estate. Italy used methods not of direct control by approval or disapproval of the contract, but of indirect control by taxation. A registration tax of 6 percent of the value transferred had, in fact, been started in January 1939. On the amount by which the value of the property had increased from that time until the date of transfer, an increase attributed to abnormal causes, a surtax was added. This surtax is the neat sum of 60 percent of the increase and must be paid by the purchaser. Exemptions were allowed up to \$2,500 (50,000 lira), but when the amount of the increase is \$15,000 (300,000 lira) the \$2,500 can no longer be subtracted. This assures favor to small holdings.

The Dutch are against land speculation. Controls in the Netherlands before conquest and in Switzerland would be hard to blame upon Nazis and Fascists. In November 1940, a law in the Netherlands provided that the selling price must not be much higher than the productive value, in other words, it must not be much in excess of the capital value of a reasonable rental. The buyer must manage this newly purchased Dutch farm himself and without intermediaries. Where land is sold at auction, the Dutch Bureau of Leases is required to fix the maximum selling price in advance.

Switzerland has a direct control system. A decree by the Swiss Federal Council, January 19, 1940, provided against speculation in land and against overindebtedness. Here as in Germany direct control over contracts is provided. Approval of a contract must be refused where one or more of three conditions exist. The sale price must not exceed by more than 30 percent the productive return established for an economic period of so many years. The transfer must not adversely affect the food supply of Switzerland. The price indicated in the deed of transfer must not be below the price actually paid. Approval of farm real estate selling contracts may be withheld when they would result in parcelling (excessive subdivision of land not intended for urban use) or merging (consolidation of long established independent farm units). Again, disapproval of the transfer may be made when the farm is too small to use the family energy of the buyer, or when the purchaser is not a farmer. Approval may

be granted when the seller acquires at a forced sale and sells at a sum not exceeding the purchase price. Approval may be granted also when the seller has a disease.

C. L. STEWART

HOW LONG WILL IT TAKE AN OPERATOR TO PAY FOR A FARM FROM EARNINGS?¹

Whether or not a farmer can expect to pay for a farm during a reasonable period of time, preferably during his productive laboring years, is an important point in our farm economy. An accumulation out of farm earnings is the only means that many farmers have to make their purchase. The following analysis is made to point out whether or not the farm earnings of these operators are adequate to pay for a farm on the basis of 1940, 1941, and 1942 conditions in the area studied.

Savings to be set aside for the purchase of a farm are usually the residual income after all other costs have been met in the normal operation of the farm business, the living costs of the farm family, and needed working or operating capital accumulated and maintained. The amount of earnings available to the farm operator for the purchase of a farm was arrived at in the following manner: from total cash income, including the sales of crops, livestock and dairy products, and other income both on and off the farm, were deducted expenses, including current purchases of livestock and working capital, farm operating expenses, and family living costs and life insurance. The net amount paid on purchases of real estate over and above borrowings for these purchases was included in the difference between income and expenses. Borrowings for all purposes as well as payments on debt principal and interest on this indebtedness were not included in these calculations. The earnings that are derived in this manner are the amounts that operators have available to pay for the purchase of farm real estate.²

The range in methods by which a farmer can pay for his farm may be from that where the entire value is paid by cash down to no cash with the entire purchase price borrowed. Operators' average farm earnings, as used in this analysis, are the amounts of savings available during that year that can be applied on the payment of a farm regardless of the relationship of borrowed funds to owned funds. Farms were classified by tenure and size of business.

¹Data used as a basis for this analysis were taken from the McHenry County, Illinois, credit study made during 1940, 1941, and 1942. The application of these results apply primarily to the dairy farms in that county.

²The assumption is made that farm operators had adequate working capital and were maintaining it but not expanding it unduly.

Owners and part-owners. The average value of all farm assets, value of land and improvements, earnings available for the payment of farm real estate, and the number of years it would take to pay for the farm real estate at different debt-to-property ratios for 1940, 1941, and 1942 are shown as follows:

<i>All farms</i>	1940	1941	1942
Number of farms	59	67	61
Investment in total farm	\$23 153	\$24 662	\$25 322
Value of land and improvements	16 000	16 000	16 000
Earnings available to pay for farm real estate	385	793	1 834
Years necessary to pay for farm if debt to property ratios ¹ is: 100% . . . . .	...²	43	11
80% . . . . .	...	27	9
60%	100	17	7
40%	28	10	5
20%	11	5	3

¹Interest at 4 percent on the borrowed funds is included in the amount charged in arriving at the number of years needed to pay out the farm.

²The earnings will not equal the 4 percent interest charge.

Farm operators earnings that could be used for the payment on land and improvements increased significantly from 1940 to 1942 averaging \$385 in 1940, \$793 in 1941, and \$1,834 in 1942. Applying these earnings to the \$16,000 average value of farm land and improvements, the average farm owner could not have supported a level of debts much higher than 40 percent of the total value of \$16,000 and paid out on it in his productive lifetime if earnings remained at the 1940 level. At the 1941 level, debts up to over 80 percent could be carried, and at the 1942 level, the entire purchase price could be borrowed and paid out in approximately 11 years. To buy a farm and expect to pay for it from earnings based upon the 1940 level the average farm operator would have to have at least 50 percent of the purchase price in cash to pay down and the balance to be borrowed.

The same information by size of farm business¹ was as follows:

<i>Small farms</i>	1940	1941	1942
Number of farms	32	32	24
Investment in total farms	\$18 411	\$18 019	\$19 550
Value of land and improvements	12 000	12 000	12 000
Earnings available to pay for farm real estate	250	316	953
Years necessary to pay for farm if debt to property ratio is: 100% . . . . .	..	..	18
80% . . . . .	..	..	14
60% . . . . .	..	81	10
40%	38	24	6
20%	13	10	4

¹Small farms were those with less than 550 productive man-work units, large farms those with 550 or more. Small farms on this basis would employ less than the labor of two full-time men, large farms would be an employment of 2 full-time men or more.

<i>Large farms</i>	1940	1941	1942
Number of farms.....	27	35	37
Investment in total farm.....	\$28 773	\$30 736	\$29 074
Value of land and improvements.....	20 000	20 000	20 000
Earnings available to pay for farm real estate.....	546	1 229	2 405
Years necessary to pay for farm if debt to property ratio is: 100%.....	..	27	11
80%.....	..	19	8
60%.....	55	13	6
40%.....	23	8	4
20%.....	9	4	2

Earnings available for the purchase of farm real estate increased from 1940 to 1942 for both size of farm groups, averaging for the small-farm groups, \$250 in 1940, \$316 in 1941, and \$953 in 1942 and for the large-farm groups \$546 in 1940, \$1,229 in 1941, and \$2,405 in 1942. Based upon the level of earnings in 1940 operators on small size farms could support a debt ratio of about 40 percent and pay out of it in a lifetime; compared to this operators on large size farms could carry a debt ratio up to over 50 percent and pay out. In these calculations operators of small size farms were assessed to pay for a \$12,000 real estate value while operators on large size farms for an average real estate value of \$20,000.

What were the range of earnings among farm operators? The number of operators who had earnings of different levels by size-of-farm groups are shown as follows:

<i>Small farms</i>	1940	1941	1942
Number of operators with earnings available to pay on farm purchases of: —\$500 and over.....	3	4	2
—\$1 to —\$499.....	8	7	2
0 to \$499.....	10	10	5
\$500 and over.....	11	11	15

<i>Large farms</i>	1940	1941	1942
Number of operators with earnings available to pay on farm purchases of: —\$500 and over.....	5	5	1
—\$1 to —\$499.....	2	2	2
0 to \$499.....	4	2	2
\$500 and over.....	16	26	32

One-third of the farm operators on small size farms had negative earnings in 1940 and 1941. On large size farms the number of operators having a negative earning were about one-fourth in 1940, and one-fifth in 1941. Negative earnings indicate that the operator is either drawing from his cash reserve or borrowing to meet a portion of his expenditures.

Tenants. The earnings available to tenant operators for farm real estate purchases were calculated against the value of land and improvements used by owners on small size farms, namely \$12,000. Earnings and

the years necessary to pay for the land and improvements of a small size farm by size-of-farm groups are shown as follows:

<i>Small farms</i>	1940	1941	1942
Number of farms	27	37	27
Value of land and improvements	\$12 000	\$12 000	\$12 000
Earnings available to pay for farm real estate	-99	500	440
Years necessary to pay for farm if debt to property ratio is: 100% . . . . .	..	83	..
80% . . . . .	..	38	54
60% . . . . .	..	22	28
40% . . . . .	..	13	15
20% . . . . .	..	6	7

<i>Large farms</i>	1940	1941	1942
Number of farms	36	42	30
Value of land and improvements	\$12 000	\$12 000	\$12 000
Earnings available to pay for farm real estate	-96	469	1 439
Years necessary to pay for farm if debt to property ratio is: 100% . . . . .	..	..	11
80% . . . . .	..	45	8
60% . . . . .	..	25	6
40% . . . . .	..	14	4
20% . . . . .	..	6	2

Obviously a tenant with average earnings during 1940 could not pay for a farm from earnings in either size of farm group. It would have been about equally easy for either size of farm group to pay for a farm from earnings based upon the 1941 levels. Tenant operators on large size farms could buy a farm much more easily than those on small size farms based upon earnings during 1942.

The number of tenant farm operators who had earnings of different levels by size of farm groups were as follows:

<i>Small farms</i>	1940	1941	1942
Number of operators with earnings available to pay on farm purchases of: -\$500 and over	6	3	4
- \$1 to -\$499	7	9	1
0 to \$499	9	12	4
\$500 and over	5	13	18
<i>Large farms</i>			
Number of operators with earnings available to pay on farm purchases of: -\$500 and over	11	7	1
- \$1 to -\$499	3	9	3
0 to \$499	10	8	3
\$500 and over	12	18	23

Operators showing negative earnings during 1940 were about one-half of the total number on small size farms and about one-third of those on large farms. In 1941, the number showing negative earnings was one-third of those on small farms and over one-third on large farms.

In summary there were over 50 percent of the owner and part-owner operators that would have found it impossible or difficult to pay for a farm from earnings if the level of earnings were based upon the 1940 level; contrasted to this less than one-fourth would have found difficulty with earnings based upon the 1942 level. The number of tenants who would have found it impossible or difficult to pay for a farm from earnings based on the 1940 level was over 70 percent and in 1942 it was slightly over one-fourth.

B. D. PARRISH

UTILIZATION OF MILK PRODUCED BY ILLINOIS FARMERS

Many changes in marketing outlets used by Illinois dairymen have occurred in the past two decades. An individual farmer or plant operator may see very little change in his methods, whereas many changes may be occurring for the industry as a whole. The disposition of milk produced on Illinois farms during the period 1924 through 1942 is shown in the figure opposite. Total production has followed a definite upward trend, and in 1942 production was the highest ever recorded.

More milk has been disposed of in wholesale deliveries of whole milk to plants and dealers than in any other manner during each of the past 20 years, and the importance of this outlet has grown steadily. Production in 1942 was approximately 29 percent above that of 1924, and wholesale deliveries to plants in 1942 were 213 percent greater. In 1942, 61 percent of the milk produced was marketed in wholesale deliveries, compared to only 37 percent in 1924.

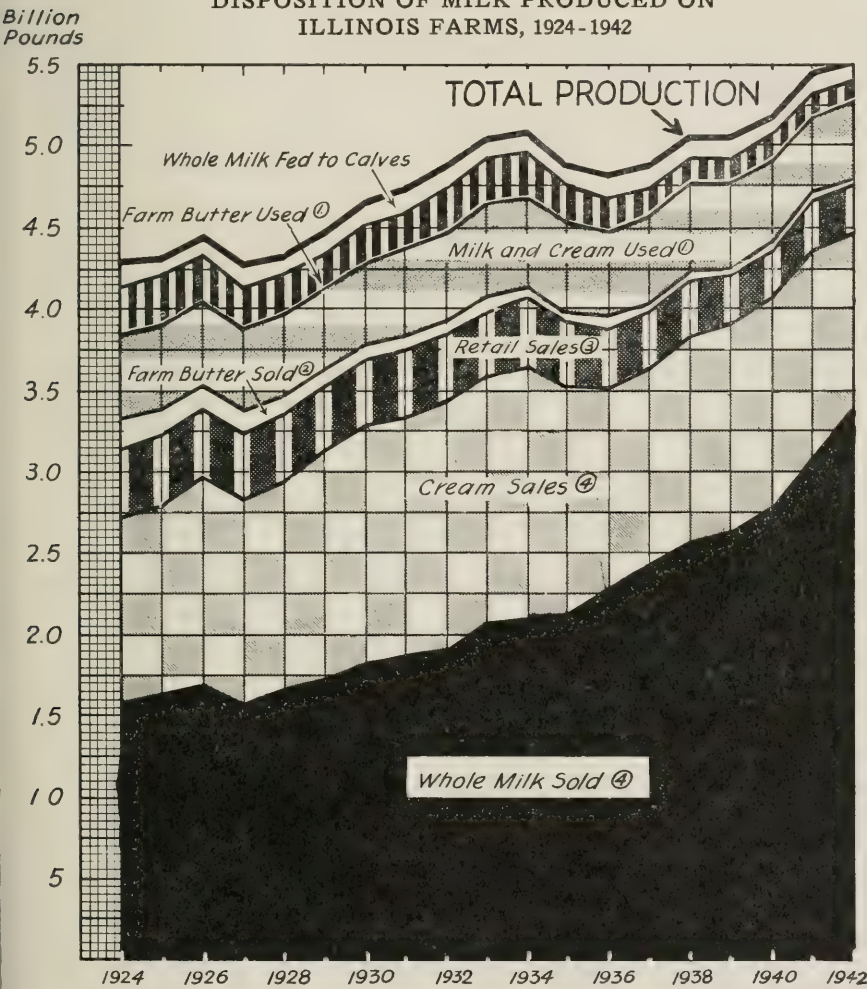
Wholesale deliveries of cream have been the second most important method of marketing milk, but the relative importance of these sales is less now than it was 20 years ago. The amount of milk being separated and sold as cream increased gradually from 1924 through 1934, and has declined since, so that in 1942 about the same amount of milk was separated and sold as wholesale cream as in 1924. The amount of milk separated for wholesale deliveries of cream represented about 27 percent of all milk produced in 1924, but only 20 percent in 1942.

Retail sales of milk and cream by farmers utilized ten percent of the milk produced in 1924; the amount has declined steadily since, and in 1942 only five percent of the production was disposed of in this fashion. Farmers are shifting the delivery responsibility to others.

Of dairy products sold by farmers, farm-churned butter takes a much smaller proportion of milk produced than any other product sold. The relative importance of farm butter sales has declined greatly in the past 20 years. While four percent of total production was so utilized in 1924, only four-tenths of one percent was so used in 1942.

The amount of milk utilized in products sold in 1942 was 1.4 times that so used in 1924. This milk represented 77 percent of the total production in 1924, and 86.5 percent in 1942. These increases have been due entirely to increases in deliveries of wholesale milk.

DISPOSITION OF MILK PRODUCED ON ILLINOIS FARMS, 1924-1942



- ① Consumed in Farm Household.
- ② Pounds of Milk Utilized in Preparation.
- ③ Sales of Milk and Cream by Farmers.
- ④ Pounds of Milk Utilized for Wholesale Deliveries to Plants, dealers, etc.

The amount of milk consumed or fed on the farms where it was produced, represented 13.5 percent of total production in 1942. This amount used on farms has declined both in total and relatively since 1924; actual quantities so used in 1942 were approximately three-fourths those used in 1924, a year in which 22.6 percent of the total milk production was used on farms.

The amount of whole milk fed to calves on farms has increased slightly since 1924; this is explained by the fact that there has been an increase in dairy cattle numbers. Consumption of milk and cream in the farm household has changed but little during this period, but the amount of farm butter produced for the farm household in 1942 was only one-third that in 1924.

Dairy manufactures more important. In the past decade a marked increase has occurred in the volume of dairy products manufactured. This increase had exceeded that in total milk production.

The creamery butter manufactured in Illinois in 1942 required slightly over one-fourth of the total amount of butterfat produced. Assuming that all cream sold wholesale by farmers was used to produce butter and that cream for ice cream production was secured from separating whole milk received, it can be estimated that one-fourth of all butter was produced from cream separated from whole milk received by plants and dealers. This represented about 11 percent of all wholesale milk deliveries in 1942.

Although more milk is required for butter manufacture than for any other use in Illinois, butter manufacture is becoming relatively less dominant. In the past ten years, production of cheese, ice cream, and evaporated milk has increased more rapidly than that of butter.

The increase in cheese production has been particularly marked; its production in 1942 was seven times that of 1933. Nearly one-sixth of all milk produced in 1942 was used in the production of cheese made from whole milk, and approximately one out of every four pounds of milk sold wholesale went to a cheese factory.

Twelve plants produced all of the evaporated canned whole milk in 1942. Nearly nine percent of all milk produced in Illinois, and about one-seventh of all wholesale milk deliveries, went to these plants. Production of this commodity in 1942 was just about twice that of 1933.

Ice cream manufacture has likewise expanded rapidly, being 269 percent more in 1942 than in 1933. Whereas evaporated milk production in Illinois is concentrated in a few plants, there were nearly 1,200 concerns making ice cream in 1942. The butter was produced in 165 plants, and the American cheese in 116 plants.

Fluid milk sales also higher. Fluid milk sales, both by dealers and by producer-distributors, amounted to slightly over one-fourth of the

milk produced on Illinois farms in 1942. Approximately 35 percent of the wholesale deliveries of milk by farmers went into fluid uses. Fluid milk sales in the past two years, and particularly in the past twelve months, have increased more than milk production or wholesale deliveries of milk. Sales of bottled milk were 27 percent higher in 1942 than in 1940 in the St. Louis marketing area, and ten percent higher in the Chicago marketing area.

Further changes in utilization may be anticipated. Statistics show a definite trend toward increased marketings of whole milk by Illinois dairymen. If the dairy payment program for October, November, and December of this year is continued in some manner in 1944, dairymen will have an economic incentive to ship whole milk rather than cream, for the payments are greater to the whole milk seller. The average butterfat test of whole milk in Illinois is 3.9 percent. Using that test, the 30-cent payment per 100 pounds of milk sold by dairymen in the 34 counties comprising the northern third of the state might be considered as 15.6 cents for butterfat and 14.4 cents for non-fat milk solids. In the remaining counties where the payment for milk is 35 cents, the payment for non-fat milk solids may be assumed to be five cents greater, since farmers shipping cream receive four cents per pound of butterfat delivered throughout the state.

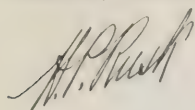
If OPA price ceilings on fluid milk sold by farmers are raised without corresponding increases in ceilings on butter prices, there will be a further incentive to sell milk.

Governmental food policy is definitely set up to secure a greater production of dairy products from whole milk. A large share of the production of these products must be set aside for sale to government agencies who are buying for military, lend-lease, and foreign relief and rehabilitation requirements.

Skimmilk is a valuable protein supplement for poultry and hogs, and in many instances its use by the farmer is his most profitable and desirable outlet. Two factors influencing a farmer's decision of whether to ship milk or cream are the types of market outlets and facilities available to reach such outlets, and the availability and cost of other protein supplements. In Illinois nearly one billion pounds of skimmilk are secured from the separation of cream sold; the amount of skimmilk dried for human consumption in Illinois in 1942 was less than three percent of this amount remaining on farms.

With a definite shortage of trucks and repairs, and restricted supplies of gasoline, tires, and man power facing us, we may find that the transportation facilities available will be the factor determining where the dairyman can sell his product.

R. J. MUTTI



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	108	84	121	120	110
1930.....	86	88	112	124	114	92	74	110	98	91
1931.....	73	65	77	109	84	61	56	93	74	75
1932.....	65	48	52	95	60	45	48	72	51	58
1933.....	66	51	56	91	62	54	59	68	54	69
1934.....	75	65	76	99	73	58	58	79	70	75
1935.....	80	79	103	101	90	68	68	86	80	87
1936.....	81	81	107	99	104	86	87	98	93	103
1937.....	86	86	120	104	108	92	88	107	111	113
1938.....	79	69	87	98	99	85	87	101	85	89
1939.....	77	65	81	97	99	85	87	108	100	109
1940.....	78	68	86	98	107	94	96	118	114	125
1941.....	87	82	109	104	142	122	117	144	168	162
1942.....	99	105	140	118	197	166	141	187	242	199
1942 Sept.....	100	108	143	119	208	144	121	198	262	208
Oct.....	100	109	145	120	211	271	226	205	271	215
Nov.....	100	110	144	121	224	200	165	209	280	220
Dec.....	101	114	148	122	226	191	157	215	288	223
1943 Jan.....	102	117	156	124	224	176	142	215	291	227
Feb.....	102	119	160	124	240	185	149	219	297	232
Mar.....	103	123	164	125	260	212	170	224	305	235
Apr.....	104	124	165	126	261	187	148	227	309	237
May.....	104	126	165	126	258	203	161	231	314	238
June.....	104	126	166	127	256	188	148	237	317	237
July.....	103	125	166	128	256	163	127	236	315	239
Aug.....	103	124 ¹¹	167 ¹¹	128	266	214	167	...	322 ¹¹	241 ¹¹
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Wheat, bu.....	1.86	.93	1.13	1.15	1.47	1.50	1.54
Barley, bu.....	.62	.55	.74	.75	1.04	1.09	1.19
Soybeans, bu.....	1.90	1.24	1.65	1.59	1.66	1.66	1.80
Hogs, cwt.....	8.52	9.37	13.37	14.40	14.10	14.40	14.30
Beef cattle, cwt.....	7.88	10.07	11.93	12.50	13.50	13.50	13.40
Lambs, cwt.....	8.36	9.85	12.28	12.60	12.90	12.70	12.80
Milk cows, head.....	58.00	80.00	102.00	105.00	128.00	130.00	130.00
Veal calves, cwt.....	8.66	11.19	13.63	14.00	14.60	14.40	14.10
Sheep, cwt.....	3.58	4.43	5.50	4.90	6.70	6.50	6.10
Butterfat, lb.....	.27	.33	.39	.45	.47	.49	.50
Milk, cwt.....	1.68	2.05	2.40	2.65	3.00	3.10	3.20 ¹¹
Eggs, doz.....	.19	.22	.29	.32	.35	.36	.40
Chickens, lb.....	.15	.15	.19	.19	.26	.25	.24
Wool, lb.....	.25	.37	.40	.41	.43	.44	.42
Apples, bu.....	1.08	1.07	1.53	1.30	2.50	2.50	2.50
Hay, ton.....	9.39	8.49	11.33	10.80	14.50	16.20	17.20
Potatoes, bu.....	.91	.82	1.32	1.20	2.00	1.85	1.65

¹⁻¹²For sources of data in tables see September issue.

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3 ILLINOIS FARM ECONOMICS

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SUBSIDIES AND THE FUTURE OF AGRICULTURAL
PRICE SUPPORTS

Disagreement over the place of subsidies in checking inflation has developed into a major political battle. As a result, it has assumed an importance far greater than the real merits of the question as far as control of inflation is concerned. The disagreement threatens to result in an accelerating spiral of inflation during the war and early postwar period. It also threatens the maintenance of price floors for farm products in the later postwar period.

According to the 1941 Act extending the life of the Commodity Credit Corporation:

Whenever during the existing emergency the Secretary of Agriculture finds it necessary to encourage the expansion of production of any non-basic agricultural commodity, he shall make public announcement thereof and he shall so use the funds made available under section 3 of this Act or otherwise made available to him for the disposal of agricultural commodities, through a commodity loan, purchase, or other operation, taking into account the total funds available for such purpose for all commodities, so as to support a price for the producers of any such commodity with respect to which such announcement was made of not less than 85 per centum of the parity or comparable price therefor. . . . For the purposes of this section, commodities other than cotton, corn, wheat, tobacco, and rice shall be deemed to be non-basic commodities.

The Act was amended on October 2, 1942 to provide that such price supports should be continued throughout the present war and "until the

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

expiration to the two-year period beginning with the first day of January immediately following the date upon which the President by proclamation or the Congress by concurrent resolution declares that hostilities in the present war have terminated." It was also amended by raising the support price from 85 to 90 percent of parity, and by adding peanuts to the list of commodities which are basic commodities.

A number of farm products have come under the provisions of the Act through announcements by the Secretary. To Illinois farmers, the most important of these is hogs.

But the passage of the 1941 Act and its amendment does not make it at all certain that prices of hogs and various other farm products to which the Act applies will actually be maintained at 90 percent of parity or above. The provisions of the law merely direct that the Secretary of Agriculture shall use the funds available to him so as to support such prices.

If prices are actually to be maintained at 90 percent of parity for two or three years after the end of the war, Congress will have to provide sufficient funds. Furthermore the life of the CCC will have to be extended again, or else there will no longer be the organization through which the Secretary is directed to support prices. Again, the support price might be changed by Congress back to 85 percent of parity or to any other figure. Recently, the continued existence of CCC has been threatened by the political battle over subsidies.

Consequently, farmers should not consider themselves assured of hog prices equal to 90 percent of parity during the two or three years following the war. They should only consider that Congress has in the past declared such to be its policy, but that for carrying out such a policy it will be necessary to have future acts passed by Congress which will both extend the life of the organization necessary to carry out the policy and which will also provide sufficient funds in order to do the job.

The outcome of the subsidy battle may have an important bearing upon the kind of postwar Government controls that we shall have, but it seems likely to effect the course of inflation during the remainder of the war in only moderate degree. In the opinion of the writer, inflation could have been prevented and could still be held in check without resort to subsidies. With sound methods of Government finance and credit control, inflation could have been prevented and prices could have been controlled with only a relatively small amount of direct price control.

Congress and administration officials in charge of our fiscal and banking policies did not choose to prevent inflation through fiscal and banking control. Instead they adopted a policy of inflating credit, but of restricting increases in prices and wages through direct controls. Under such a system, economic strains are bound to develop both because of mistakes

in setting price ceilings and because of changing conditions. If a given ceiling price is set too high or becomes too high relative to others, it is almost impossible under the pressures of credit inflation to lower that ceiling price; hence, it may be necessary to raise the other prices.

The spiraling of "controlled" prices may be illustrated by what has happened to some agricultural products. A little over a year ago, farm groups demanded that something be done to stop the seasonal decline of hog prices lest farmers sell their hogs at too light weights. A support price of \$13.25 was then provided and this was later raised to \$13.75. Meanwhile, both the CCC and OPA were holding down corn prices. But it soon developed that those who wanted to buy corn for feeding dairy cattle couldn't get enough corn. Many farmers could make more money by feeding corn to hogs than by selling it. We have recently had an increase in the corn price ceiling. Before this there were demands for higher prices of dairy products, and the increase of corn price ceilings caused even more pressure. Now, soybean growers say that soybean prices must be raised or corn will be more profitable and there won't be enough soybeans grown. Next, we shall probably have demands for higher prices of soybean oil and meal, vegetable shortenings and so forth. With higher prices for things farmers buy, including "corn, vegetable shortenings, and oil meals," parity will rise and some price ceilings on farm products will have to be raised correspondingly in order to meet the requirements of the law. The process is an endless upward spiral unless something is done to break it.

One possibility of stopping the spiral is to ease the inflationary pressure by putting a halt to credit expansion. Another is to use subsidies in place of price increases and thereby stop the rise in the cost of living and of parity prices. The use of subsidies would be more in line with the methods we have thus far adopted in attempting to curb inflation. However, neither subsidies nor the general methods of price control which we have adopted appeal to the "rugged individualism" of many American farmers.

Whatever the outcome of the subsidy battle, no agency charged with a responsibility should be criticized for failure if it is not given the powers necessary to meet that responsibility. The OPA, and to a lesser extent, the War Food Administration have been charged with the responsibility of preventing inflation. They were never given the power to control the fundamental causes of inflation, hence, they should not have been expected to do a really satisfactory job. But they have nevertheless done much to check inflation. If the power to use subsidies is denied them and they are not given additional powers, we cannot expect our present agencies to remain a very potent force in the battle against inflation.

In the final analysis, it may not make very much difference in the extent of inflation whether subsidies are continued or not. It is quite likely, of course, that doing away with direct subsidies would soon result in a marked increase in prices and the cost of living. However, it seems likely that the administrative officials of the Government are very anxious to avoid the disorganizing effect of a rapid price inflation, and it is altogether possible that if they are denied the use of subsidies in connection with direct price controls, they may adopt a method of credit control which, in the long run, will serve the same purpose.

E. J. WORKING

FOUR WAYS TO MEET THE FARM LABOR SHORTAGE

With less labor available many farmers will "cut the corners" in 1944. This does not mean that they will produce less, which would be the easiest way to save labor, but that they are determined to produce as much or more vital foods, even with less labor. This means that each available farm worker will have to produce more. How can this be done on your farm and in your community?

Here are some of the ways that Illinois farmers are saving labor and increasing production. Planning your work ahead will make it possible to accomplish these aims on your farm.

1. *Planning operations so that peak labor needs are kept to a minimum.* On most Illinois farms there are three peaks of labor: first, in the spring when seedbeds are prepared and oats, corn and soybeans are planted; second, in June and early July when soybean and corn cultivation come at the same time as haying and small grain harvest; and third, during soybean and corn harvesting in the fall. Plan your work in advance so that as few jobs as possible compete for your time during these rush periods. Do slack season work at other times—fencing, manure hauling, overhauling machinery, repairing buildings, and making labor-saving equipment. Plan a schedule of rainy day jobs, and have materials on hand for doing them.

2. *Exchanging help with your neighbors* on jobs that require extra help.

3. *Seeing that all labor-saving machines in the community are used to full advantage.* This can be done through custom work, exchanging the use of one machine for another, and through exchanging labor for the use of a machine. If you do not own a combine, corn picker, four-row planter, or pickup baler, you may be able to get the use of one by helping a neighbor who does own one.

4. *Studying ways of making work easier by simplifying farm jobs.* There is a hard way and an easy way to do every job, and in every community some farmer has worked out a way of doing a certain job easier than the ways generally practiced. Ask these questions about the way you do some specific job:

(1) Is the job really necessary? What would happen if you didn't do it? Can parts of the job be eliminated?

(2) Can it be combined with another job? Engineering tests show that pulling both a tandem disk and a grain drill behind a tractor save 37 percent of the labor, 43 percent of the fuel, and 25 percent of the total cost of disking and drilling as two separate operations. Other jobs that are successfully combined are plowing and harrowing, disking and harrowing, seeding and disking oats, and in some cases mixing grain and supplement feeds so that they are fed together.

(3) Will a substitute method save time and increase production? Under some conditions land can be disked instead of plowed, or a harrowing or rotary hoeing can be substituted for a cultivation. With a four-row tractor planter, drilling corn is from one-half to two-thirds faster than check-rowing. Labor-saving methods may also be substituted in livestock feeding. Use self-feeders instead of hand feeding whenever possible, and remember that the larger the feeder the more the saving in labor. Hogging down corn eliminates husking, cribbing, feeding, and manure hauling. The extensive use of improved pastures, and feeding on pasture rather than in lots save time in handling feeds and hauling manure.

(4) Can time be saved by changing the places where feeds and equipment are stored, and by having buildings and lots conveniently arranged? This applies particularly to chore work, and, if you are a typical Illinois farmer, you spend more time doing chores than you do in the field. Watch the route you follow in walking to and from feed lots, feed bins, poultry house, cow barn and milk house. Can you save steps by moving a feed bin closer to the animals you are feeding? By storing equipment in a more convenient place? By changing the location of a gate, or a hay or grain chute?

Efforts to save labor should not lead farmers to adopt practices that prevent getting high crop yields and high livestock production. Short cuts that reduce crop yields or result in unthrifty livestock do not make for efficient use of labor. But there are many ways in which farmers can plan and carry out their work that will save labor and at the same time increase total production.

J. E. WILLS

ANALYSIS OF CORN PRICE CEILINGS AND DISCOUNTS

Effective December 6, 1943, the ceiling price on corn was raised. Points in the order of interest to Illinois farmers are:

1. The basic prices per bushel at designated markets to be used in calculating ceiling prices of No. 2 yellow corn at local points follow. (A

bushel is 56 pounds of shelled corn or not less than 68 pounds of ear or snapped corn.)

Chicago	\$1.16
Peoria and Pekin, Illinois.....	1.15
St. Louis, Mo., and East St. Louis, Ill.....	1.16¾
Evansville, Ind., and Cairo, Ill.....	1.18½
Nashville, Tenn.....	1.28¾

2. The discounts for factors other than moisture are specified as follows:

No. 3—½ cent; No. 4—1 cent; No. 5—1½ cents; Sample—2 cents

3. For moisture content the following discounts are specified for each ½ percent moisture over 15.5 percent (No. 2 corn):

Over 15½% and under 17½%—½ cent
Over 17½% and under 20%—¾ cent
Over 20%—1 cent

Thus, for corn with 17.5 percent moisture the discount for moisture would be 2 cents; for 20 percent moisture, 5¾ cents; and for 23 percent moisture, 11¾ cents. Above 17.5 percent these discounts are higher than have prevailed in recent weeks when the common scale of discount was ½ cent for each ½ percent moisture over 15.5 percent.

4. Price on white corn is 15 cents over price of yellow of the same grade and moisture.

5. A "formula price" can be calculated for any shipping point by deducting from any of the above market prices the freight to this market. The base price is used which, freight considered, gives the highest local "formula price." For 27 counties in Southern Illinois, the base price to be used in such calculation is \$1.21½ at Cairo, Illinois (see 11 below).

For example, assume that the freight from a given point to Chicago is 10 cents per 100 pounds, or 5.6 cents per bushel. Adding 3 percent for transportation tax, we get 5.768 cents per bushel. Deducting this from 116 cents and adjusting the difference to the next highest ⅛ cent, we get 110¼ cents, as the "formula price." If the price does not come out to an even ⅛ cent, it is adjusted to the next highest ⅛ cent.

6. The maximum price at which a farmer may sell corn delivered to the purchaser at the farm is 4 cents less than this "formula price" at the nearest interior rail or barge loading point by the route commonly used. If he delivers corn to an elevator or other buyer, the maximum price is 2½ cents less than the "formula price." When corn is sold at the farm and any service is performed by the buyer, such as shelling, the "reasonable value" of such service must be deducted from the price.

Thus, in the above example, where the "formula price" for No. 2 corn was 110¼ cents, the maximum price it sold and delivered at the farm

would be $106\frac{1}{4}$ cents, and if delivered to an elevator, it would be $107\frac{3}{4}$ cents.

7. For corn sold in less than carload lots to anyone besides a "feeder" or in lots of 30,000 pounds or more to a "feeder," a wholesaler may add to the lawful cost of the corn he resells, 4 cents a bushel, if the corn is loaded into an elevator or a warehouse and loaded out again; otherwise he may add $2\frac{1}{2}$ cents. Only one wholesale charge may be made on any lot of corn.

8. A retailer may add 5 cents to his lawful cost. This includes sale to feeders in lots of less than 30,000 pounds.

9. In figuring transportation costs, the following maximum scale of truck charges are provided for non-common carriers: on shelled corn, $1\frac{1}{2}$ cents per bushel for the first five miles or fraction thereof, and $\frac{1}{4}$ cent for each additional 5 miles; for ear corn, the corresponding maximum charges are 3 cents and $\frac{1}{2}$ cent. Thus for a 100-mile haul the maximum hauling cost would be $6\frac{1}{4}$ cents on shelled corn and $12\frac{1}{2}$ cents on ear corn.

10. In deficit areas the cost of corn to farmers buying from a retailer who brings shelled corn in by truck from a surplus area 100 miles away would be illustrated by the following example:

Cost of corn to elevator.....	107½ cents
Wholesale margin.....	4 cents
Transportation (shelled corn basis).....	6¼ cents
Retail margin.....	5 cents
	<hr/> 122¾ cents

But the farmer who sells corn in such an area has his ceiling price fixed by the calculated "formula price" less 4 cents if he delivers to the buyer at the farm as explained in paragraph 6 above.

11. In 27 counties in Southern Illinois this discrepancy between the ceilings on imported and local corn is in part corrected by raising the base price at Cairo by 3 cents or to $\$1.21\frac{1}{2}$ in determining the "formula price" in this area. Also as we go south from the surplus area, the railroad rate to Cairo tends to become less. However, it would seem that Evansville, Indiana should also have been given a higher base price in calculating "formula" prices in this area because many of the railroad lines serving the area have more direct connection and lower rates to Evansville than to Cairo.

The counties which may use the higher Cairo base include the following: St. Clair, Clinton, Marion, Clay, Richland, and Lawrence, and all counties south of these except Hamilton, which is not listed.

The effect of this is to raise the "formula price" in the area by 12 cents a bushel instead of nine cents, wherever a favorable rate applies to Cairo.

L. J. NORTON

ASSEMBLING MILK FROM FARM TO MARKET DURING WARTIME

The job of getting milk from farms to receiving plants has created problems for many receiving plant managers and dairymen this past year. An analysis of the changes that occurred in the hauling operations of one country receiving plant in Illinois was made in order to find out what has been happening. A summary of these hauling operations and changes made between the period August 1942 to August 1943 appears below:

Item	August 1942	August 1943	Change	
			Actual	Percent
Number of commercial routes.....	31	28	-3	-9.7
Number of producers on routes.....	623	594	-29	-4.7
Average number of producers on routes....	20.1	21.2	1.1	5.5
Number of cans of milk hauled.....	1 730	1 608	-122	-7.1
Average number of cans of milk per route..	55.8	57.4	1.6	2.9
Total mileage of routes.....	1 212	1 031	-181	-14.9
Average mileage per route.....	39.1	36.8	-2.3	-5.9
Pounds of milk hauled per mile driven....	90.1	98.3	8.2	9.1

These data show that this plant did not have as many routes or patrons in August 1943 as a year earlier. These changes together with a decline in milk production resulted in a seven percent decline in the amount of milk hauled to the plant. However the average number of producers and the average load on each route were greater. These changes resulted in a more efficient operation of the remaining trucks, for these trucks traveled in total 181 fewer miles each day, their routes averaged nearly $2\frac{1}{2}$ miles less, and they hauled nine percent more milk per mile of travel than the trucks operating a year earlier.

The reduction in mileage was accounted for by four routes discontinuing operation in the 12-month period; the length of these routes in August 1942 was 217 miles. One of these routes had traveled over 75 miles daily. In August 1943 the total length of 27 of the 28 routes was eight miles greater than in 1942. The other route began operation in 1943 and added approximately 28 miles to the daily route mileage.

Only five routes were hauling for identical producers on the same farms in August 1942 and 1943. Seven other routes on which changes in patrons occurred had a net change in mileage of less than one mile. More than half of the routes had significant changes in route mileage. Ten routes added an average of four miles daily, and the length of five other routes average 6.6 miles less. This indicates that the pattern of hauling is not inflexible.

Changes in load hauled. The fluctuation in production on identical groups of dairy farms is indicated by the fact that a change in the size of load hauled occurred on each of the five routes with no change in producers. It varied from a decrease of six cans to an increase of four cans. Of four routes on which the load was the same in each period, the number of producers on the route was different than a year earlier in each case.

Seventeen trucks hauled less than 55 cans of milk in 1942, compared to 12 trucks in 1943. But in 1942 five trucks hauled loads exceeding 85 cans, compared to only three trucks in 1943. If these data are representative of conditions in other receiving plants, they indicate that some of the smaller routes are being enlarged by adding a few patrons from a route which discontinues.

A decrease in the number of the larger-size loads may be due partially to the speed limit, because the trucks with the biggest loads usually have more patrons and travel more miles than the average route. Thus the extra time required may have forced some truckers to reduce mileage. Another explanation of the decrease may be that as trucks become older and more susceptible to mechanical trouble, the haulers do not wish to drive them as fast as before and may wish to cut down on miles of travel as well. There is evidence that some truckers who have poor roads on their routes have been revising their routes in order to eliminate travel on some of the poorer roads.

Changes in haulers. The turnover among truck operators has been quite noticeable throughout the state. Nine of the truckers hauling to the plant studied in August 1943 had not been hauling a year earlier. They represented about one-third of the routes. Twelve of the haulers, nearly 40 percent of the total in 1942, discontinued hauling during the 12 months. The arrangements they made upon leaving follow:

Withdrew without selling truck or route to any present driver...	5
Sold their trucks and routes to present haulers.....	4
Retained ownership of truck and route (now in military service)...	2
Sold his route, but not his truck, to the present operator.....	1

The chief problem for dairymen and the receiving plant arises when a trucker withdraws without selling his truck and arranging for a new operator. In this study approximately one-fifth of the truckers discontinued and did not sell their trucks. One of these trucks was sold to a party outside the milkshed, but the other five are still in the area and are hauling different products. Of these five, two were pickup trucks, which had small, and relatively unprofitable, loads; part of their loads were combined with other routes.

Farm-owned trucks have and will probably continue to take over when

commercial vehicles wear out. There is a limit to this practice, however, for their size and condition frequently are not adequate for daily commercial use.

Changes among producers. In August 1943 there were 64 producers who were not shipping to the plant a year earlier. They constituted 11 percent of all producers on routes. There were 53 producers (nine percent) who were on different routes in 1943 than in 1942. The reasons for these changes are as follows:

Changed because their former route operator had quit.....	30
Changed in order that four trucks could reduce their mileage....	11
Had moved to farms in another part of the milkshed.....	5
Were on same farms, even though their former hauler is still operating.....	5
Had hauled milk to plant themselves.....	2

The dynamics of milk assembly are indicated by the fact that five percent of the producers had to change routes because of a hauler discontinuing. This involved changes in the other routes which then secured these producers' milk. Persons who see chances for saving mileage through transfer of producers to another route may be encouraged by the fact that 13 producers did that very thing.

There were 92 producers shipping to the plant in August 1942 who were not shipping there a year later. This was a 15 percent decrease. Of these producers, 22 had to seek other markets because routes to this plant had discontinued traveling past their farms, 25 others were reported as selling milk or cream to other plants, and eight were reported as having sold their dairy herds. One producer had moved out of the milkshed, another was in military service, and a third had died. No definite information was secured on the remaining 34 producers—some of these merely had a dry herd, while others had sold out or transferred markets.

The 27 routes operating in both years added an average of 3.8 producers and lost an average of 3.3 producers. There were 10 routes which lost no producers, and nine lost three or less. Six routes did not add any producers and 11 routes added three or less.

Although 14 of the 28 routes in August 1943 had not secured any producers from other routes, all routes secured an average of 1.9 producers from other routes. The 28 routes added an average of 2.3 new producers each.

Thirty-five percent of the routes had 15 or less producers in 1942, compared to only 25 percent in 1943, but there were five routes in 1942 which had 32 or more patrons, compared to three routes in 1943. This resulted in less variation in number of producers per route, with the average number about one producer greater.

Hauling by individuals. Nearly every receiving plant buys milk from some producers who are not on commercial routes. The total number of individuals hauling their milk to this plant was the same in August 1942 as in August 1943, but seven producers hauling in 1942 were not hauling their own milk to the same plant in 1943. Two of these producers had their milk picked up by a commercial route, but the other five were either selling to some other plant or had discontinued milking.

Five of the new individual haulers did not ship to the plant in August 1942; the other two had been on commercial routes in 1942.

The seven producers added traveled a total of 56 miles daily compared to 45 miles traveled daily by the producers lost. Thus, the mileage traveled by individual haulers was 11 miles greater in 1943 than in 1942.

The placing of individual haulers on commercial routes may make possible a further reduction of mileage and trucks required to assemble milk. However, such a procedure is neither possible nor desirable in every case.

Changes among trucks hauling into St. Louis. An analysis of the names of truck operators hauling to plants located in the city of St. Louis from country points in Illinois during May 1942, and again in August 1943, showed that ten persons hauling in 1942 were not operating the routes 15 months later. There were eight operators in August 1943 who were not hauling in May 1942. This indicates a net reduction of two trucks hauling milk into St. Louis from the Illinois portion of the milkshed, and represents a decrease of only two percent from the 96 trucks hauling milk into St. Louis during the summer of 1942. It is possible, however, that some of the operators owning more than one truck may have reduced the number of their units which unload in the city.

Conclusions. The changes occurring at the country plant were those resulting from the impacts of war and the normal course of business; that is, they did not occur as a result of a definite industry plan to curtail mileage. If such plans were instituted, some additional savings might be made through an exchange of patrons where there is a duplication of roads traveled, and by using some trucks only in seasons of heavy production or periods when road conditions are poor.

Such plans must of necessity be flexible and revised often in order to take care of producers' entering or leaving a given market, the fluctuations in production, the man power available to drive trucks, and the number, capacity and condition of trucks available to do the hauling, for these data clearly indicate that the assembly of milk from farm to market is constantly changing.

R. J. MUTTI

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	108	84	121	120	110
1930.....	86	88	112	124	114	92	74	110	98	91
1931.....	73	65	77	109	84	61	56	93	74	75
1932.....	65	48	52	95	60	45	48	72	51	58
1933.....	66	51	56	91	62	54	59	68	54	69
1934.....	75	65	76	99	73	58	58	79	70	75
1935.....	80	79	103	101	90	68	68	86	80	87
1936.....	81	81	107	99	104	86	87	98	93	103
1937.....	86	86	120	104	108	92	88	107	111	113
1938.....	79	69	87	98	99	85	87	101	85	89
1939.....	77	65	81	97	99	85	87	108	100	109
1940.....	78	68	86	98	107	94	96	118	114	125
1941.....	87	82	109	104	142	122	117	144	168	162
1942.....	99	105	140	118	197	166	141	187	242	199
1942 Oct.....	100	109	145	120	211	271	226	205	271	215
Nov.....	100	110	144	121	224	200	165	209	280	220
Dec.....	101	114	148	122	226	191	157	215	288	223
1943 Jan.....	102	117	156	124	224	176	142	215	291	227
Feb.....	102	119	160	124	240	185	149	219	297	232
Mar.....	103	123	164	125	260	212	170	224	305	235
Apr.....	104	124	165	126	261	187	148	227	309	237
May.....	104	126	165	126	258	203	161	231	314	238
June.....	104	126	166	127	256	188	148	237	317	236
July.....	103	125	166	128	256	163	127	236	315	239
Aug.....	103	124	167	128	266	214	167	238	322 ¹¹	242 ¹¹
Sept.....	103 ¹¹	124	170	128	242	179	139	214	328 ¹¹	243 ¹¹
Oct.....	103 ¹¹	122	172	129	250 ¹¹	...	...	...	333 ¹¹	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Nov. 1942	Current months		
	1935-39	1941	1942		Sept.	Oct.	Nov.
Corn, bu.....	\$.66	\$.63	\$.77	\$.73	\$1.01	\$1.00	\$.98
Oats, bu.....	.31	.36	.48	.45	.73	.77	.77
Wheat, bu.....	1.86	.93	1.13	1.16	1.50	1.54	1.52
Barley, bu.....	.62	.55	.74	.75	1.09	1.19	1.19
Soybeans, bu.....	1.90	1.24	1.65	1.59	1.66	1.80	1.80
Hogs, cwt.....	8.52	9.37	13.37	13.60	14.40	14.30	13.20
Beef cattle, cwt.....	7.88	10.07	11.93	12.50	13.50	13.40	12.60
Lambs, cwt.....	8.36	9.85	12.28	13.20	12.70	12.80	12.40
Milk cows, head.....	58.00	80.00	102.00	110.00	130.00	130.00	128.00
Veal calves, cwt.....	8.66	11.19	13.63	14.00	14.40	14.10	13.40
Sheep, cwt.....	3.58	4.43	5.50	5.30	6.50	6.10	5.50
Butterfat, lb.....	.27	.33	.39	.46	.49	.50	.50
Milk, cwt.....	1.68	2.05	2.40	2.75	3.10	3.15	3.20 ¹¹
Eggs, doz.....	.19	.22	.29	.34	.36	.40	.43
Chickens, lb.....	.15	.15	.19	.19	.25	.24	.23
Wool, lb.....	.25	.37	.40	.40	.44	.42	.44
Apples, bu.....	1.08	1.07	1.53	1.50	2.50	2.50	2.55
Hay, ton.....	9.39	8.49	11.33	11.50	16.20	17.20	17.50
Potatoes, bu.....	.91	.82	1.32	1.20	1.85	1.65	1.75

¹⁻¹²For sources of data in tables see September issue.

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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

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THE GENERAL ECONOMIC SITUATION

The demand for food will continue to be strong during 1944. In general this situation will tend to hold prices of farm products near ceilings, with less than normal seasonal fluctuations. Some exceptions may of course occur as the result of unforeseen developments, such as shifts in war needs, droughts, or other hazards.

From 1939 to 1943 the average level of farm product prices increased more than the prices of goods which farmers buy. The result was the most favorable price relationship of any year since 1918. With costs rising less rapidly than prices received, farmers have been encouraged to emphasize high production. During 1943 the general rate of increase was about the same for both prices paid and prices received by farmers, but costs in livestock production rose more than costs in crop production. In 1944, prices of farm products will in general continue relatively high compared with costs of production. In crop production, especially, it will be profitable for farmers to put chief emphasis on volume of business.

The large volume of government war spending will continue to be the dominant factor affecting economic conditions in 1944. Expenditures of the government for November 1943 alone were \$7.8 billion compared with expenditures of \$8.9 billion for the entire calendar year 1939. The large amounts spent by the government in 1943 caused total consumer incomes to exceed the value of available civilian goods and services by \$51 billion. Direct personal taxes are expected to absorb \$18 billion of this amount, leaving a difference of \$33 billion for investment and savings.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

Natural History Survey
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Consumer incomes in 1944 will probably exceed the \$142 billion income of 1943. Because of limited manpower and equipment the production of civilian goods cannot be greatly expanded until the end of the European war. Hence higher consumer incomes will mean increased pressures on price ceilings.

Any marked increase in total consumer incomes which occur in 1944 are likely to come from such inflationary forces as higher wages and higher commodity prices rather than from increased employment or the production of more goods and services. Less than 2 percent of the civilian labor force was unemployed in the latter part of 1943. The rate of increase in industrial production is slowing up. The tendency for monthly expenditures of the federal government to level off indicates that peak production of war materials may soon be reached.

Certain civilian food supplies for 1944 will be scarce, but the over-all situation is not expected to be critical. Although food production in 1944 may equal 1943 production, supplies available to civilians are not likely to exceed those of 1943 and may even be smaller if noncivilian food requirements increase.

Goals for 1944 call for increases in the production of corn, wheat, soybeans, hay crops, milk and eggs for Illinois and for the nation. The Illinois goals call for the following increases over 1943 production: corn acreage, 1 percent; soybean acreage for grain, 16 percent; hay acreage, 5 percent; wheat acreage, 30 percent; milk production, 5 percent; sows for fall farrowing, 4 percent; and egg production, 4 percent. Decreases from 1943 are requested in the production of oats and rye, sheep and lambs, and in sows to farrow for spring pigs.

Farm land values. The advance of 22 percent in the value of Illinois farm real estate from 1939 to 1943 resembled the advance of 16 percent from 1914 to 1918, also a war period. Prices have advanced most rapidly during the past year. Farmers should use caution in purchasing land, especially where heavy indebtedness has been incurred. Illinois land prices are now at a higher level than is justified by average farm earnings for the past 20 years.

After the war. After the termination of the European war, whether in 1944 or later, the demand for agricultural products is likely to be maintained at high levels for a year or more.

Uneven business conditions will develop as the national economy begins to shift from total war to the production of civilian goods. The backlog of demand for civilian goods, coupled with the accumulation of purchasing power in the form of war bonds and bank balances, should act as a cushion to business while the shift is being made. Unemployment

may develop in some sections of the country, however, as people migrate from war industries to other places of work.

Farmers will be affected less than other groups because there will be little change in the type of production. However, because production will be at a high level, surpluses of some commodities will appear. Exports of foodstuffs for relief and rehabilitation of European countries will be fairly large during the demobilization period. Such exports are likely to continue only as long as is necessary for devastated countries to resume normal food production and as long as we continue to finance them.

Removal of price controls while consumer incomes are at a high level and before the production of much-wanted civilian goods can be expanded might permit an inflationary boom during the demobilization period. This situation could be partially avoided by paying more of the war expenses now from current incomes through assessment of higher taxes and through increased purchases of war bonds by nonbanking investors.

OBJECTIVES OF THE PUBLIC SCHOOL IN SERVING RURAL YOUTH¹

No consideration of the problems of rural youth would be complete without attention to the work of the public school. Today there are many excellent agencies organized to serve the needs of rural youth. Many of them are new and thus set up to meet the current situation. They have the youthful vitality of a growing organization, are able to adapt to changing needs, with a relatively small clientele can move ahead without waiting for the approval of a public majority, and receive the stimulation and leadership of an organized nationwide program. Few of these organizations, however, reach into every rural community and fewer yet into the majority of families within the community itself. This means that in the average small community there are relatively few agencies serving its youth and often these serve a very small group or in a transitory way. To meet the needs of even half our rural youth it is necessary to utilize some agency which can reach them and which can assist the other agencies set up for this specific purpose.

The public school should do this job. It reaches into every local community and belongs to the whole community. Headed by 17,500 rural high schools, it provides the most universal and the most stable educational institution found in rural America. Usually it has the largest trained professional staff and the most complete physical plant for housing community activities found in rural America. The school is the most universal,

¹The summary of a talk delivered at the 43rd Annual Farm and Home Week Conference, Univ. of Illinois, Feb. 9, 1944.

not only because of the wide clientele reached but also because youth attending school have that as their major activity for a large part of the year. The school is the most stable in its program, in the regularity with which it carries on, and in the support and confidence given by the public. It has a staff which provides a large resource of professionally trained leadership through the school, can serve youth directly in many ways and through which other agencies can and do secure a large part of their leadership and guidance for their own activities.

The school staff serves youth as a part of their school work and as leaders in activities outside of the school. The same is true of the school building and grounds. They provide a wide variety of facilities for school use which can and should be widely utilized by other agencies to house their activities through providing the types of room and equipment needed. A wide variety of organizations such as found in cities, each designed to serve a highly specialized need cannot operate effectively in the small community. The pattern of youth organizations developed must be adapted to the small community organization and needs. One of the great problems in serving rural youth now is the lack of services in most communities and the over-supply of overlapping agencies in a few. The small community should have agencies which serve the current needs of its particular youth. It must use every resource available and avoid the waste in funds and energy which arise from lack of a community-wide program in which all agencies play their part.

The school can assist rural youth in two ways: (1) directly through the school and (2) through helping other agencies. It can be of great service to those enrolled. Its first responsibility is to give them the type of training which will best serve their needs. A curriculum designed to prepare for college entrance when three-fourths of our high school youth do not attend college, and the academic study of foreign languages when very few find use for such languages, does not best serve youth needs. Instead the curriculum should be focussed on the citizenship and vocational needs of youth. They should have opportunity to study and understand democracy, its ideals and organization; the social and economic life of their own country and how it is carried on; the forces which are playing upon and reshaping the local community and the world. And each youth upon finishing high school should have a first hand knowledge of occupations in the community and be on his way toward vocational competence in some occupation. Youth on completion of high school should have had definite training for participation and leadership in community organizations such as the farm organizations or at present the special wartime activities. Those planning to enter city life should have additional training needed to prepare for meeting the problems they will face.

At the present time emphasis is needed on pre-induction training for youth who will enter the armed forces and special preparation for those who will participate in occupational or civic work in connection with the war effort on the civilian front, particularly participation in the food production program. High school youth should be prepared to drive school busses, work on farms, help with day nurseries, do Red Cross work and participate in similar activities as provided through the high school Victory Corps. High schools need to bridge the gap between school and post-school life. Proper training in school, a continuous study of the work and life of graduates and those who leave school, special classes and organizations for out-of-school youth to consider civic and vocational problems all have a place in the responsibility of the school.

The other responsibility of the public school—helping other youth agencies, is also essential. In addition to preparing youth for membership in these agencies, it can take the initiative in coordinating these activities when this is needed. It can continue to and increasingly place its resources for leadership at the disposal of the other agencies when this provides the best way to serve youth needs. For example, one rural high school has made arrangements with the U. S. Employment Service to act as a branch of that service in providing guidance for local workers who desire placement through its regular channels. If the 17,600 rural high schools performed this service, one of the greatest needs of rural youth—available guidance—could be provided efficiently and effectively. It can place its physical plant more definitely at the disposal of other organizations and agencies thus increasing the returns on the capital invested in buildings and grounds.

Adequate and equal educational opportunities for rural youth require that the public school assume an active role in serving youth needs directly, in assisting other agencies and in securing a coordinated community-wide program. It also requires that other agencies understand the place of the school and recognize its functions in the total program. The small school faces a tremendous challenge in meeting the fundamental needs of the youth it serves. As the basic educational institution in the community, it should perform all functions which cannot be performed as well or better by some other agency. It is usually easier for newer agencies to institute new developments and for the school to make them generally available.

FRANK W. CYR,
Professor of Education
In Charge of Rural Education
Teachers College
Columbia University

RURAL TEACHER SHORTAGES

A serious shortage of adequately prepared rural school teachers exists in Illinois. A large number of schools, especially one-room schools, have closed during the past two years. Many emergency certificates, which permit those without the qualifications specified by law to teach, have been issued. The enrollment in teachers' colleges of those preparing for rural school teaching has declined alarmingly in the past five years. This situation is shown by a special study made by the subcommittee on teacher training of the Illinois Rural Education Committee and by reports from the Office of the State Superintendent of Public Instruction.

More than one-fourth of the children in Illinois are in rural areas and attend rural schools. Almost half of the children of the nation are in rural areas. In normal times more than half the youth educated in rural areas migrate to the towns and cities. In wartime this migration is intensified. The preparation given to rural teachers is thus of great concern to rural and urban areas alike. The trend toward lowering the standards for qualification of rural teachers cannot help but lower the quality of educational preparation for the youth in rural areas. Every effort should be put forth to prevent this, especially in wartime and in preparation for the difficult adjustments which will have to be made in the postwar period.

Closing of rural schools. Illinois had over 10,000 Board-of-Director (one-room) schools in the year ending June, 1942, according to the 1942 Annual Statistical Report of the Superintendent of Public Instruction. Seven hundred fifty nine schools had no school for the year; most of these were one-room schools. An estimated additional 700 rural schools closed in 1943, so that Illinois now has approximately 8,600 active one-room schools. Many of the schools closed because there was no available qualified teacher. Others closed because the enrollment dropped so low that transportation of pupils to another school became desirable. The average daily attendance in one-room schools dropped to well below an average of 12 for the state; that is, more than one-half of the one-room schools now have fewer than 12 pupils in average daily attendance.

Emergency certificates issued. Emergency certificates are issued upon request from school boards and directors who certify to the State Examining Board that no qualified teachers are available. Emergency certificates are issued only after August 1 before school opens. By November 1, 1943, 1,630 such certificates had been issued in Illinois; by December 1 the number had increased to 1,806. The qualifications of these 1,630 teachers, as shown by a study made by Luther Black, Assistant Superintendent of Public Instruction, are shown in the following table:

	<i>Date of graduation from high school</i>	<i>Date received last training</i>	<i>Date last teaching was done</i>
Before 1931	51.4 percent	44.9 percent	26.3 percent
After 1931	25.0 percent	39.4 percent	16.3 percent
No record.....	23.4 percent	15.7 percent	57.4 percent

It is significant that only one-fourth had graduated from high school since 1930 and that one-fourth gave no record of their high school training. Only two-fifths had received any training since 1930; the other three-fifths, evidently, had taken no additional training in the past ten years. Only one-sixth had done any teaching since 1930.

Other data collected by Mr. Black, not recorded in the above table, showed that one-fifth had no college training and that over 45 percent of the 1,630 had less than two years in college. Almost a third had less than five years experience and over a third declined to record the amount of teaching done.

Most of the certificates issued, according to Mr. Black, were issued to teachers in rural schools and the small rural town schools. Most of the unfilled positions were in physical education, agriculture and music.

Decreasing enrollment in teachers' colleges. Reports from the five state teachers' colleges show that 138 students had enrolled in rural curricula in 1939-40; in 1943-44 there were only 15. A total of 37 students were getting some training for teaching in rural schools, including student teaching in a rural school, in all the teachers' colleges in the past academic year. Yet from one-half to three-fourths of the teachers graduating from teachers' colleges normally take their first positions in one-room schools.

How to meet the situation. The Illinois Rural Education Committee, in its meeting in December, 1943, made the following recommendations in order to meet the rural teacher shortage:

1. Develop a program to influence a large number of rural teachers to attend summer sessions at the teacher training institutions.
2. Expand the number of rural school workshops in the state.
3. Develop a public relations program to get more high school principals, high school teachers, and public school authorities to realize the acute need for more high school graduates to prepare for rural school teaching, and to get the public to understand the need for adequate financial returns to teachers.
4. Develop a program to get school authorities and parents to see the need of allowing college students who are preparing for teaching to remain in college at least two years and preferably four years before starting to teach.

5. To urge teacher training institutions to make necessary adjustments to give those who plan to teach after two years, adequate training in rural education so as to meet the emergency. D. E. LINDSTROM

THE GOVERNMENT PROGRAM FOR THE 1943 CROP OF SOYBEANS¹

The 1942 and 1943 crops of soybeans have been marketed under conditions of great stability of prices. In both years the government established producer support prices, \$1.60 on the 1942 crop and \$1.80, plus low moisture premiums, on the 1943 crop for Grade No. 2 or better yellow and green soybeans. Then contracts were made with processors providing for the processing of the crop.

There are fixed prices on soybean products, 11 $\frac{3}{4}$ cents per pound in the midwest for crude soybean oil and \$45.00 per ton for the 1943 crop soybean meal, bulk, Decatur, Illinois, basis. With fixed upper limits to products values, with fixed producer support prices, and with a supply situation that dictated complete use of all midwest processing equipment — the government has underwritten the program. This is, in effect, one of the much discussed subsidy arrangements.

The annual cost of this program to the government was estimated at 10 million dollars by Chester Bowles, Administrator of OPA, in a table printed in the *Congressional Record* of December 18, 1943 (page 10985). In the same source can be found a statement by J. B. Hutson, President of Commodity Credit Corporation to the effect that "The average loss (on the soybean program) will amount to 1 cent per pound of soybean oil, but on some beans the loss will run as high as 2 cents per pound."

The government pays out this 10 million dollars. Who gets it? The answer depends on the point of view. The consumers of soybean oil get their oil at 1 cent or a little more a pound cheaper. So the consumers get it! Perhaps the farmers get 8 to 10 cents more a bushel for soybeans than they otherwise would. And if so, the farmers get it! Marginal mills can operate, so they get it! Perhaps the best answer is that without the present plan consumers would pay more for oil and meal.

The basic elements in the current (1943 crop) program are the two ceiling prices mentioned above and the contracts between processors and the Commodity Credit Corporation. For the 1943 crop there are four types of these: 1. Midwest; 2. Pacific Coast; 3. Cotton states; and 4. Commodity processed soybeans outside of the soybean belt.

¹Acknowledgment is made to Mr. J. H. Lloyd, Assistant Regional Director, Commodity Credit Corporation, for assistance in interpretation of various phases of the standard contract.

Analysis of contract. The following analysis refers to the contract with Midwest processors. The principal elements of this are:

1. Processors who manufacture oil must process all their soybeans under terms of this Commodity contract.

2. They must *not pay less than* a price which returns to the producer \$1.80 per bushel of No. 2 grade or better yellow or green soybeans or \$1.60 for No. 2 grade or better black, brown or mixed soybeans on basis of 14% moisture. There is no provision that they cannot pay more, but it is obvious, after further reviewing the provisions of the contract why they would hesitate to do so. The contract also provides for premiums and discounts according to grade and moisture.

3. The processors sell all their soybeans to the Commodity Credit Corporation at \$1.80 for yellow and green and \$1.60 for brown, black and mixed, basis in store, processing plant before September 30, 1944. Processors keep the discounts and recover the low moisture premiums through the contract provisions for determination of Adjusted Base Chemical Grade Prices on oil content analyses computed to a 14% moisture basis.

4. The processor sells and immediately (or in some cases on a deferred basis) repurchases all his soybeans at his contract "Base Chemical Grade Price" which varies with the type of processing, the volume processed, the oil content, and the regional ceilings on soybean oil. The effect of all this is to make the net cost of soybeans vary according to the volume crushed, the amount of oil recovered, and the cost of the processing operation.

5. Based on \$45.00 per ton for bulk soybean meal basis Decatur, Illinois, 11¾ cents for crude soybean oil in tank cars, and an oil content of 18.5 percent at 14 percent moisture, the base contract product values per bushel for different types of equipment are:

No. 1 Solvent Extraction.....	\$2.257
No. 2 Super Duo Expeller and Modern French.....	2.108
No. 3 Duo Expeller and Old French.....	2.089
No. 4 Old Type Expeller.....	2.07
No. 5 Hydraulic.....	2.075

6. In determining his plant's repurchase price, each processor deducts from the applicable base value figures shown above, the applicable processor margin shown below, plus 8 cents per bushel for elevator handling and for storage charges. He has already paid out 5 of these 8 cents to the country elevator for handling.

The processor contract margins specified for plants of different types and sizes are as follows:

	<i>Manufacturer's original rated daily capacity</i>		
	<i>Less than 3,000 bushels</i>	<i>3,000 to 6,000 bushels</i>	<i>Over 6,000 bushels</i>
Solvent.....	\$.31	\$.30	\$.29
Expeller and French.....	.28	.26	.24
Hydraulic.....	.31	.30	.29

7. To this he adds 1 cent for each ¼ cent that the maximum price of crude oil at his plant location exceeds the basic 11¾ cents.

8. This is adjusted up or down by ⅒ cent per bushel for each ⅒ percent

variation from the basic 18.5 percent oil content. Thus any factor such as color, variety, or season which affects the quality of the products or the oil and meal content of the beans tends to govern the net cost of beans to the processor.

Example. No. 2 yellow soybeans are processed in a large plant (over 6,000 bushels daily capacity), equipped with duo expellers, the processor would figure cost of soybeans as follows:

Cost.....	\$1.85	(\$1.80 to farmer plus \$.05 to local elevators)
Sale to CCC.....	1.80	
Repurchase from CCC at.....	1.769	(\$2.089 minus \$.24 minus \$.08)
Net Cost.....	\$1.819	

By this arrangement the processor acquires his basic grade soybeans at 3.1 cents less than if he had paid \$1.80 to the producer plus 5 cents to local elevator. If these contained 18 percent oil, 3 cents would be deducted. It is clear that the amount of this "subsidy" varies with the contract estimated efficiency of his equipment in recovering oil and with his volume. The plan aims to make it possible for all plants to operate. In the case of solvent plants the net cost is above \$1.85 and so the processor is in effect "subsidizing" the rest of the industry. Thus, for a large volume processor using the solvent extraction process, it would work as follows:

Cost.....	\$1.85	(\$1.80 plus \$.05)
Sold to CCC.....	1.80	
Repurchase from CCC at.....	1.887	(\$2.257 minus \$.29 minus \$.08)
Net Cost.....	\$1.937	

9. To prevent processors from profiting from plant location or from the use of soybean oil meal for other purposes than livestock feed, the following contract provisions are included:

A. Soybean meal is priced at the Decatur, Illinois price of \$45.00 per ton plus freight from Decatur, Illinois to the mill in the case of f.o.b. plant sales, and plus freight from Decatur, Illinois to destination in the case of destination sales. The mill must repay to the CCC any freight savings realized by virtue of sales on these bases. In the event of transit movement of soybean oil meal in carlots, the mill must refund to the CCC the difference between the Decatur, Illinois freight to destination and the actual cost of inbound freight on the meal portion of the beans (approximately 80%) plus the transit balance on the meal to the point of destination. On f.o.b. plant sales, it must pay to the CCC the amount by which the plant's Decatur, Illinois, freight exceeds \$1.80 per ton. What does this mean? Assume that a mill, because of its location, must price soybean meal at \$4.00 per ton over the Decatur price of \$45.00. On those f.o.b. plant sales it must pay \$2.20 (\$4.00 — \$1.80) of this to CCC. On carlot sales moved under transit billing to an \$8.00 Decatur freight destination the payment would be the difference between \$8.00 and his actual freight cost. If that freight cost was \$5.80 then he would pay the CCC \$2.20 per ton. The effect is to put each mill on the Decatur basis so far as its realization under the contract is concerned. The earnings of CCC on this account presumably are used to offset losses on other parts of the program. All farmers, regardless of location, obtained \$1.80 for soybeans by virtue of support price. The CCC, in effect, recovers a part of the excess paid farmers for beans at points remote from Decatur, the price basing point for soybean meal.

B. If soybeans are not used for making soybean oil meal for use as live-stock feed the processor must repay to CCC the amount that the sale price to CCC exceeds the processors repurchase price. Thus, the cost of soybeans for other uses is the "support price" unless the processor has a higher repurchase price than \$1.80. In that case his cost of beans for other products such as soy flour is his Base Chemical Grade Price under the contract.

10. Processors are not permitted to benefit from any increase in ceilings on soybean oil or meal by being required to pay the equivalent of any such increases to CCC, while CCC agrees to pay processor the equivalent in case of reduction in ceilings.

11. To protect processors against unsold commodities, the CCC agrees to buy all soybean meal offered on or before September 30, 1944 on the following basis: \$43.00 bulk basis, f.o.b. plant plus cash surrender value of any inbound freight billing accepted by the CCC, and also, to purchase all soybean oil offered before this date at $\frac{1}{8}$ cent per pound under the applicable ceiling price in tank cars, f.o.b. plant.

12. Penalties are provided of substantial amounts for not carrying out various provisions of the contract.

Is the base price also the "ceiling" price? All this is of only "academic" interest to the farmer who has sold his 1943 crop of soybeans. He has his money and has forgotten about the soybeans. But the farmer who still holds soybeans, and the quantity on Illinois farms on January 1, 1944 is estimated at 16,944,000 bushels, may ask: Can I get more than the \$1.80 base? If he sells for seed, he is not affected by this program. But if he sells in the commercial market, the following must be considered.

1. There is no ceiling established at this time on the price of 1943 crop soybeans.

2. A processor who pays more than \$1.80 for No. 2 yellow soybeans must resell to CCC at \$1.80 and repurchase on basis described above. His net cost is increased by the amount that he pays above \$1.80.

3. This must come out of the margin allowed.

4. This margin covers all cost including purchasing, processing, sales and overhead, and the storage of soybeans from purchase to time of processing (except as this item is covered by the difference between the 8 cents per bushel contract allowance for "elevator and storage" and the 5 cents he pays to local elevator for handling). Storage at 1 cent per bushel per month and interest at 3 percent per annum would run about $1\frac{1}{2}$ cents a month. Thus, soybeans stored from October 15 to April 15 would accumulate costs of 9 cents, for which the contract allowance to processor was a blanket 3 cents per bushel for the season's crush. A processor could afford to pay somewhat above the \$1.80 for soybeans delivered to him late in the season which he can grind currently, and for which he would not incur any lengthy storage or interest charges.

It is therefore possible that the 1943 crop soybeans may sell somewhat higher if processors' stocks run low. But the amount of the advance is limited by the fixed margin under which the processor operates and the ceiling prices on soybean oil meal and soybean oil.

L. J. NORTON

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE
URBANA, ILLINOIS

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H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁹	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	124	114	116	94	110	98	91
1931.....	73	65	77	109	84	77	71	93	74	75
1932.....	65	48	52	95	60	57	60	72	51	58
1933.....	66	51	56	91	62	68	75	68	54	69
1934.....	75	65	76	99	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	99	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	104	142	146	140	144	168	162
1942.....	99	105	140	118	197	200	169	187	242	199
Dec.....	101	114	148	122	226	229	188	215	288	223
1943 Jan.....	102	117	156	124	224	211	170	215	291	227
Feb.....	102	119	160	124	240	222	179	219	297	232
Mar.....	103	123	164	125	260	255	204	224	305	235
Apr.....	104	124	165	126	261	224	178	227	309	237
May.....	104	126	165	126	258	244	194	231	314	238
June.....	104	126	166	127	256	226	178	237	317	236
July.....	103	125	166	128	256	195	152	236	315	239
Aug.....	103	124	167	128	266	206	161	238	322	242
Sept.....	103	124	170	128	242	215	168	214	328 ¹¹	243
Oct.....	103	122	172	129	249	325	252	249	333 ¹¹	247
Nov.....	103 ¹¹	121	170	130	256	...	...	...	...	247 ¹¹
Dec.....	103 ¹¹	122	169	131	...	...	...	...	...	245 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Jan. 1943	Current months		
	1935-39	1942	1943		Nov.	Dec.	Jan.
Corn, bu.....	\$.66	\$.77	\$.98	\$.88	\$.98	\$1.06	\$1.07
Oats, bu.....	.31	.48	.66	.54	.77	.78	.79
Wheat, bu.....	1.86	1.13	1.43	1.33	1.52	1.54	1.57
Barley, bu.....	.62	.74	1.00	.85	1.19	1.20	1.20
Soybeans, bu.....	1.90	1.65	1.68	1.60	1.80	1.80	1.81
Hogs, cwt.....	8.52	13.37	14.07	14.15	13.20	13.10	13.10
Beef cattle, cwt.....	7.88	11.93	13.46	12.70	12.60	12.80	12.80
Lambs, cwt.....	8.36	12.28	13.57	14.00	12.40	13.40	13.60
Milk cows, head.....	58.00	102.00	129.25	120.00	128.00	126.00	126.00
Veal calves, cwt.....	8.66	13.63	14.40	14.40	13.40	13.80	13.90
Sheep, cwt.....	3.58	5.50	6.58	6.00	5.50	5.80	5.90
Butterfat, lb.....	.27	.39	.49	.47	.50	.50	.49
Milk, cwt.....	1.68	2.40	2.97	2.90	3.15	3.10	3.05 ¹¹
Eggs, doz.....	.19	.29	.36	.34	.43	.41	.30
Chickens, lb.....	.15	.19	.24	.22	.23	.23	.23
Wool, lb.....	.25	.40	.42	.40	.44	.44	.43
Apples, bu.....	1.08	1.53	2.49	2.00	2.55	3.00	3.10
Hay, ton.....	9.39	11.33	15.11	12.70	17.50	18.60	19.60
Potatoes, bu.....	.91	1.32	1.92	1.40	1.75	1.70	1.75

¹⁻¹²For sources of data in tables see September issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture • University of Illinois • Department of Agricultural Economics

G. L. Jordan, Editor

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YOUTH IN THE RURAL COMMUNITY¹

Let us try to devise some social hall marks for the rural community. A hall mark is a stamp to guarantee quality. Our rural communities need quality, not simply respectability; they need to be a vital way of life in our day.

May I suggest four such hall marks—tokens by which to measure our communities. First, is my community a truly cooperative enterprise; second, does my community offer challenging work opportunities; third, are the social institutions of my community actually socialized; fourth, does my community sense its mission in this generation's interdependent world?

A rather large order, I can hear someone say. Yes, it is, but we are all involved in an enormous undertaking. This is not only a world war; it is in many particulars of social, economic, and political relations, a world revolution. Many of the things by which in the past, we have set store, are shattered, gone. We now, even now when the battles are still raging, must rebuild, if necessary, at least take stock of that community where we live; of that community to which we wish to welcome those returning from war; that community and its social ideas and arrangements which are in no small way to help determine policies of nation and world. Therefore, to the task.

Is our own local community, made up as it is in these days with rapid communication and transportation of farmers and villagers or

¹An abstract of a talk delivered at the 43rd Annual Farm and Home Week Conference, University of Illinois, February 8, 1944.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

small-town people, bound together by sentiment, service, and social institutions—a **truly cooperative enterprise**? I do not mean just the conventional idea of a cooperative, one-man one-vote, but rather a conscious enterprise within which every group is busily engaged with some central purpose in mind—young and old, men and women, in school and out of school, farmers and business men, club women and plain women. No, it is not to suggest that everyone in the community try to do the same thing at the same time; that attempt would result in confusion. The point of this first hall mark, a community being a cooperative enterprise, is that each group have some sense of its importance and make its contribution to the whole. Many rural communities have very little consciousness of their own identity. Many farmers and villagers do not sense their joint responsibility. Failure in such situations easily results in poor schools, lack of recreational opportunities, juvenile delinquency, impotent churches, easy victims for the demagogue who seeks by selfish appeal to set one group against another.

Somewhere in our modern rural society there must be this central unit of community, this cross road in a democracy where various groups and agencies can clear their numerous activities so that they can be put together, cumulated into a scheme which makes sense, which yields to local control and direction, and which is not continuously looking to outside sources or to some authority from above to tell what should be done.

In some rural communities this end is accomplished by an informal council of agencies and institutions, drawing up at first a simple calendar, for example, so that the school basketball games will not always be on church nights; arranging for some events of community-wide interest and importance such as the dedication of the military service flag or plaque; striking out in an area too large for any one group, or perhaps neglected or overlooked by every agency such as a recreation program for young people during the winter months. The method is unimportant, the end of community cooperation is all important.

The community is the only local group which can take over this cooperative task in rural society. The old country neighborhood with its one-room school and one-room church cannot do this alone; it can help by relating these country churches and country schools to the larger community but they cannot do it apart as they once did in the days of the pioneers.

Does our community offer challenging work opportunities now and when the military boys and girls will come back? How are we going to

get ready for that coming back? How will they know whether they are wanted, whether their work will be considered essential? How will they know whether they want to stay or look elsewhere for work? This hall mark of quality calls for important work, not busy work such as raking leaves, but work which contributes to the life of the community. Let us face this question of jobs quite frankly. When the boys return, is the test to be jobs or returns on investments? When unemployment threatens, as it will, we shall have to choose whether it is more important for boys and girls to have a job than for those who have money to have dividends. In the long run dividends depend upon jobs. We shall have to decide whether it is more important for a boy and his girl, now his wife, to own a farm, raise a family, than for those who rent farms to get commercial rent. In the long run rents depend upon good husbandry and husbandry is encouraged by ownership opportunities.

Oh yes, we can do something about this in the local community. Again we cannot look to outside agencies entirely. Some people will want and should want to move to some other community, urban or rural, but if this community of ours is to continue, the younger generation must move into the bank, the school, the church, the store, the farm, as the older generation moves out, and they must do it with enthusiasm and determination because the opportunity is challenging.

Are the social institutions in our community actually socialized? I refer to the school, church, library, bank, newspaper, hospital. Sometimes such institutions are in the community but not of it. Schools may be centered in subject matter, not in the living experience of children; churches in another world, not in community welfare; libraries in cataloging, not circulating books; banks in investments, not personal service; hospitals in the sick, not helping to keep people well; newspapers in printing, not community communication. While each of these institutions has its own unique function, they are each part and parcel, social agencies, of the community and as such have profound social obligations.

Consider here only school and church for illustrations while you are going over in your own minds what to do within your community in this realm of its institutional life.

In America we have always had and still have great faith in education—from the cradle to the grave. "Life begins at 40"—a great thrust can be expected in all phases of adult education. Nursery schools for children are here. Give me the child until he is 7 and you may have the man, agree both priest and psychologist. Both are stressing the deep importance of early training, upon adult health, especially mental and emotional health.

Does this all mean the family is on the way out? Not at all, but it does mean a newer and clearer articulation of all types of education among all social agencies within the community. Opportunity for leadership in this regard lies with the high school, but if it does not rise to it, modern communities will form other agencies. Such communities will not brook a stiff and formalized school system set apart from its community relations.

Laymen—the farmers, homemakers, business men, bankers—are finding their places in the concept of education on a community-wide scale and again, why not? Theirs is an experience, a resource, too little used in many a rural community. In Australia one afternoon I found myself out in the school garden with a young farmer in charge. The school teacher became pupil along with the rest and with no loss to his prestige but with great benefit to the whole program of learning.

Rural education then, is community education, recognizing that its clientele, its pupils, if you must, are living in the family, on the farm, in the village, while they are going to school; realizing that education knows no age limits and that the level of education provided for youth cannot rise far above the level of appreciation and understanding of adults; reinforcing those other constructive forces in the community upon whose interdependence it rests—church, press, and the others. Have your open-country schools if you must, but tie them in with a high school on a community basis.

Churches? Certainly! The essential spiritual quality of man cannot be questioned even in the midst of a world war. The voice of the church must sound out clearly above the confusing battle and the cheapening of all life, that human life is spiritual in its essence. Recently a hard-boiled radio news commentator said in no uncertain terms that the spirit which is represented by such personalities as Gandhi of India, Madame Chung of China, is more important in shaping the fate of our world than all the armies on the vast battlefields. Is it not time that we try to understand and harness this power, this spirit of a people, to community tasks?

The church, to be sure, has no monopoly on this spiritual character of man but it does have great opportunity for nurturing and guiding it in its development and in its social outreach. The church, although transcendental in some of its aspects, is also a social institution with sills resting firmly within the local community. Its leadership can be no less effective, no less prepared, no less well paid, and no less responsive to the community than the community's educational leadership. This point of view presupposes a carefully arranged working relationship among the various churches of a community and of these churches with the schools

and other social agencies. This is not to argue for or against church union, or federation, or for any special technique, but to stress the interaction of church and school in community.

Does our rural community sense its place, its mission, in the interdependent world of today and tomorrow? Only two angles can be considered in this hall mark of community affairs, and these but briefly. First, our rural community, is directly interdependent with urban communities. If we could only learn the lesson of the present situation to carry over into the postwar period. For the first time in our America there is enough money for most people to buy enough to eat. With all the lend-lease arrangements only a relatively small amount of food is going overseas for civilian consumption. The figures are startling. When city people have money they buy food and clothing and they are glad to pay good prices for them. In the year 1935-36 fully 30 percent of the nation's families and single persons had annual incomes of less than \$720 according to the national Resources Committee Report. How could we have expected them to buy enough food? It is the direct concern of rural communities that all people, rural and urban alike, have permanent employment at wages which will enable them to have an adequate standard of living.

Second, our rural community is interdependent with an interdependent world. We in the Middle West are known, in some quarters at least, as "isolationists." What do they mean, are they calling us names? Can we define our position? What do we propose to do? We shall have to take our stand on this issue also. Last time we tried to live unto ourselves, building higher and higher barriers to international commerce of ideas and of commodities. Can we, do we want to do that this time? No one can answer for you, but you and your community can help each other by study, discussion, and meditation.

Hall marks—guarantees of quality for a rural community—youth and adult together, they cannot be separated: it shall be a cooperative enterprise; it must offer important work opportunities; its social institutions shall be socialized; its mission in an interdependent world must be clear and compelling.

"I like to see a man proud of the place in which he lives. I like to see a man live so that his place will be proud of him."—A. LINCOLN

J. H. KOLB,
Head of Dept. of Rural Sociology
College of Agriculture
University of Wisconsin

HOW CLOSE ARE WE TO THE PEAK IN CATTLE NUMBERS?

Since 1934 cattle numbers have increased in the United States by 7.8 million head or 10 percent. During 1943 the increase was 3 million head or 4 percent. How close are we to the peak in cattle numbers? The answer to this question is of importance for two reasons: (1) its effect on cattle values; (2) its effect on supplies of beef.

When numbers begin to decrease marketings will be increased and values are likely to work lower. The 3.0 million increase in cattle on farms, if marketed in 1943, would have increased marketings by an equal number. This is roughly equivalent to $1\frac{1}{4}$ billion pounds of cattle and nearly $\frac{3}{4}$ billion pounds of beef.

The trend in numbers in the past 20 years is shown in Figure 1. The number has increased for 6 years. This has been the most common length of increase in numbers in the periods of expansion since 1900.

The incentives to increase cattle numbers have been improved prices, which made ownership of cattle more attractive, and available feed and pasture. From January 1937 until January 1943 the value per head of cattle was higher each year than in the previous year, but this upward trend was checked during 1943. On January 1, 1944 the average value per head was \$68.72 compared to \$69.56 a year earlier. Also, each year from 1936 to 1942 feed production was higher than in the previous year,

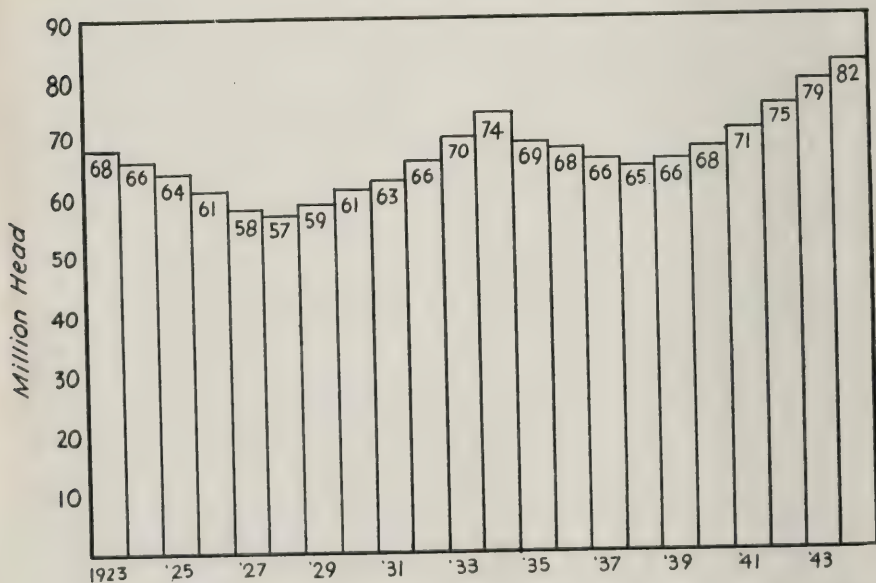


FIG. 1. NUMBERS OF CATTLE AND CALVES IN U. S. ON JANUARY 1 (1923 TO 1944)

TABLE 1.—ESTIMATED NUMBERS OF CATTLE AND CALVES ON FARMS
JANUARY 1, 1934 AND 1944 IN SELECTED REGIONS AND STATES

	1934	1944	1944 as percentage of 1934	1944 as percentage of 1943
United States.....	74.4	82.2	110	104
North Atlantic.....	4.9	5.2	106	103
North Central.....	34.0	38.5	113	104
South Atlantic.....	4.7	5.5	117	106
South Central.....	18.3	19.2	105	102
Western.....	12.4	13.8	111	106
New York.....	2.1	2.2	105	103
Illinois.....	2.7	3.2	118	101
Wisconsin.....	3.3	3.9	118	103
Iowa.....	4.6	5.6	122	101
Nebraska.....	4.0	3.9	98	107
Kansas.....	3.9	4.0	102	102
Georgia.....	1.1	1.1	100	105
Mississippi.....	1.3	1.5	115	104
Texas.....	8.4	7.7	92	101
Montana.....	1.7	1.7	100	113
Colorado.....	1.8	1.9	105	110
California.....	2.1	2.6	124	102

but the end of 1943 feed supplies were somewhat smaller than a year earlier. Failure of values to increase and shortage of feed would both operate to reverse the trend toward increased numbers.

Where did the increase from 1934 to 1944 occur? This is shown in Table 1. In the North Atlantic states the increase was only 6 percent; these are chiefly dairy cattle. The increase still continued in 1943. In the north-central states the 10-year increase was 13 percent, and in the area as a whole, it continued in 1943. However, in Illinois and Iowa the increase during 1943 was only 1 percent, and in Kansas only 2 percent. Reduction in cattle feeding and increased acreages in grain crops with less hay and pasture account for the small increase. In the South Atlantic states the 10-year increase has been 17 percent, and it continued in 1943. The South Central area had only 5 percent more cattle in 1944 than in 1934; this includes Texas where the numbers of stock sheep increased by 28 percent in this period. Texas, our largest cattle state, had 8 percent fewer cattle in 1944 than in 1934. The western states have 11 percent more cattle than in 1934 and a large increase occurred in 1943. Montana, where the numbers have just gotten back to the 1934 level, increased cattle numbers by 13 percent in 1943 and Colorado increased by 10 percent. California on the other hand, where the 10-year increase has been 24 percent, increased cattle numbers only 2 percent during 1943.

These area changes indicate that cattle numbers may be stabilizing in the central cornbelt, in Texas, and on the Pacific Coast. In other areas the increase will depend on feed supplies, the stability of cattle values, and in the dairy states, on the returns from dairying. It is a pretty safe con-

clusion that within a year or so opportunities for expansion will be limited and there is a possibility that the peak has been reached. This depends on feed, pasture, and range conditions.

When the numbers begin to turn down, it is very likely that values will decline, though not abruptly as long as wartime demands continue, and that beef production will be temporarily increased.

Supplies of feeder cattle for cornbelt feeders will be influenced largely by the trends in numbers particularly in the western states and in the western parts of the north-central and south-central regions. As long as feed supplies permit building up numbers and in the absence of a sharp decline in values these areas are not likely to liquidate cattle.

L. J. NORTON

PROSPECTS FOR FARM POPULATION AND EMPLOYMENT AFTER THE WAR

During the past three years there have been great shifts of population and employment in the United States. From all parts of the country men have gone to the army in large numbers. Furthermore, both men and women workers have moved into our rapidly growing centers of war production. In the period April 1, 1940 to March 1, 1943 the civilian population of the state of Illinois decreased by a little over 3 percent. In the majority of the counties of the state, however, the decrease was more than 10 percent and in one county it was 24 percent. The greatest increase for any county was 8.6 percent.

Since 1941 there has been a sharp decline in the farm population. This decline has been similar, though more rapid than that which occurred from 1917 to 1919. It is no doubt primarily the result of the entry of young men from the farms into the armed forces. Although official estimates of the United States farm population for January 1944 have not yet been made, it seems likely that there has been a further decrease to about 27 million from the January 1943 level of 27.8 million.

The course of farm population of the United States from 1910 to 1943 is shown by Figure 1. It will be seen that there was a general downward trend from 1910 to 1940. The decline has not been a steady one, but has evidently been influenced by economic conditions as well as by war. Thus, from 1922 to 1927 there was a fairly rapid decline in the number of people living on farms, whereas in the period of severe depression from 1930 to 1933 there was a sharp increase. With business conditions improving after 1933, farm population declined at a fairly steady rate until 1940.

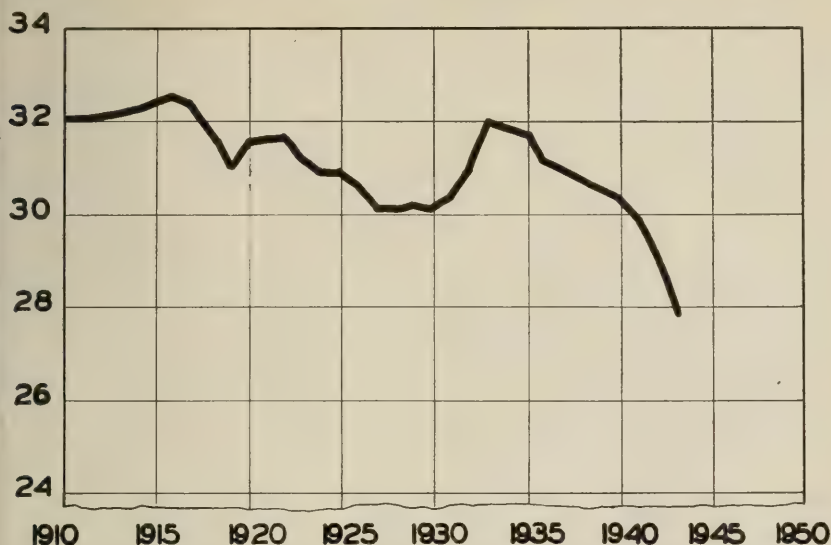


FIG. 1. FARM POPULATION, UNITED STATES, JANUARY 1, 1910 TO 1943

After the war it seems certain that there will be an increase in farm population. The increase will probably be somewhat similar to, but greater than, the increase which occurred following World War I. How much the increase will be is uncertain. It will be due, in the first instance, to the return of "farm boys" who have been in the armed services to their farm homes. But will this movement be augmented by the lack of adequate employment opportunities in the cities? Will we have, as we did in the years 1930 to 1933, a drift of unemployed people from the cities and towns back to the farms where their relatives live? It is to be hoped that we shall not. It is to be hoped that through business enterprise, wise fiscal and monetary policies and wise governmental policies with regard to controlling business enterprise, we shall be able to avoid a period of widespread unemployment.

A primary responsibility of the nation in the postwar period will be to see to it that there are ample opportunities for employment. During the demobilization period several million of the men discharged from the armed services will seek peacetime occupations. A still larger number now employed in making war goods should also be put to work supplying goods and services for civilian use. It is our duty to see to it that all these people have the opportunity to be employed at good wages and under good working conditions. This will involve providing employment opportunities for several million more people than were employed in 1940.

Should agriculture increase the number of people it employs after the war? It seems to be the opinion of some people that the number of people employed on farms should be increased in about the same proportion as the total number that should be employed. Such an opinion, however, should not be accepted without careful consideration of what may be the relative need for increased production of agricultural and of other products.

In the first place, it should be self-evident that not all civilian goods should have their production increased in the same proportion when hostilities are over. During the war we have found it feasible to reduce the production of electric refrigerators much more than of shoes for civilians. Conversely, when the war is over we should increase the production of electric refrigerators much more than the output of shoes. But, even if we make the comparison with the output of 1940 or any other year when we were not at war, the desirable level of postwar production would not be attained by an equal percentage increase for each product. As we have gone from depression to prosperity the total volume of food consumed in the United States has not greatly increased. There has been some increase, due partly to the fact that we need more to eat when we work more, and partly to the tendency to be wasteful when we are more prosperous. But increases in food consumption in periods of prosperity have been insignificant compared with the increased consumption of many luxuries and conveniences. Consequently, if we are to attain the prosperity which we should with full employment after the war, we cannot expect this to result in any very large increase in the number of pounds of food consumed per capita.

As compared with that of the past two years the total food production of the United States will probably need to be decreased somewhat rather than increased soon after the close of the war. In the past two years our food production has been approximately 20 percent higher than in the years 1937 to 1939. This additional production has mostly gone for lend-lease and for the expanded needs of our armed forces. When the war ends there will still be great need for agricultural products to supply the needs of the war-devastated countries, and it is likely that we shall make arrangements for financing for a time the export of somewhere near the same volume of agricultural products as we have exported in the past year or two. The most urgent needs for food from the United States for purposes of relief and rehabilitation will probably be past within a year or two after the close of the war in Europe. Certainly, our exports of foodstuffs are not likely to remain at their swollen wartime levels much beyond the period when we are willing to finance them.

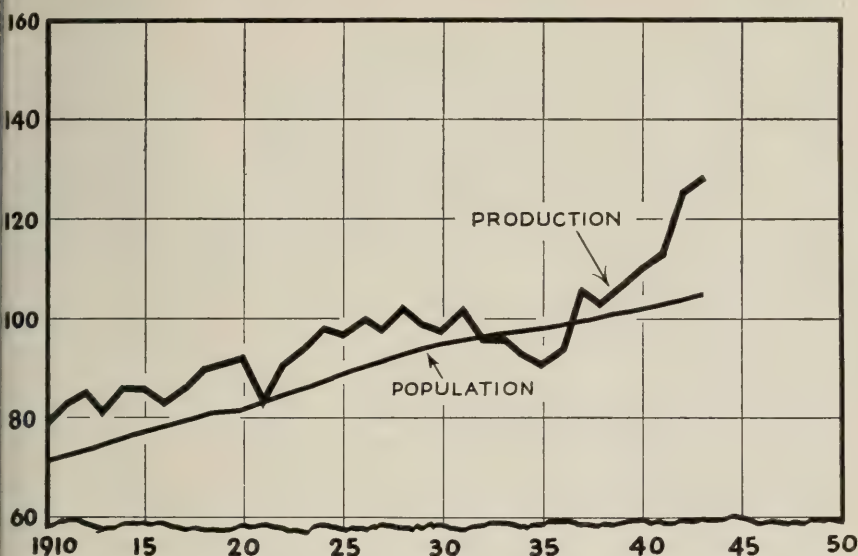


FIG. 2. INDEX NUMBERS OF AGRICULTURAL PRODUCTION AND TOTAL UNITED STATES POPULATION, 1910 TO 1943 (1935-1939 = 100)

In the past two years the volume of agricultural production has been abnormally high relative to our population. This is indicated by Figure 2, which shows the course of the United States agricultural production and population for the years 1910 to 1943. The long-time trend of both population and agricultural production has been upward during all this period.

In spite of the upward trend in the volume of agricultural production there has been a fairly steady decline in the number of people employed on farms in the United States. This is shown by Figure 3 which represents the United States Department of Agriculture's estimates of the annual average number of both family and hired workers employed on farms. It will be noted that in 1939 there were approximately 2 million or 20 percent fewer workers on farms than there were thirty years earlier.

A comparison of Figures 1 and 3 indicates that there is less cyclical fluctuation in farm employment than in the number of persons living on farms. Thus, though there was a marked increase in the number of persons living on farms from 1930 to 1933, there was during the same period a small decrease in the number of persons employed. In this connection it is perhaps significant to note that the number of family workers increased while the number of hired workers declined.

Two different sets of figures are currently available concerning the number of persons employed in agriculture. One series is that compiled

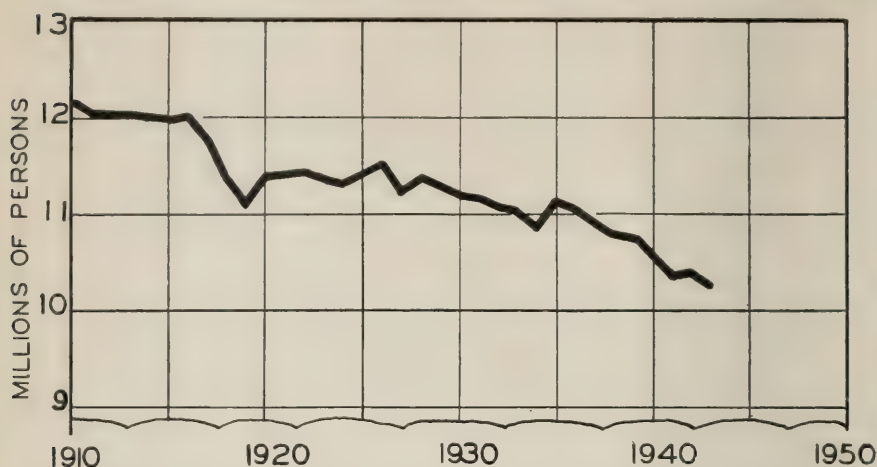


FIG. 3. FARM EMPLOYMENT, INCLUDING HIRED AND FAMILY LABOR, UNITED STATES, 1910 TO 1943

by the Department of Agriculture. The other is prepared by the Bureau of the Census in connection with their estimates of the nation-wide labor force, unemployment, and employment in all industries. Both series are available monthly, the Bureau of the Census data begin in April 1940, whereas the others are available beginning in 1925.

The two series of employment estimates show different trends over the past four years. As shown in Figure 4, the Bureau of the Census estimates of agricultural employment show a marked increase from 1940 to 1943, whereas the estimates of the Bureau of Agricultural Economics of the Department of Agriculture indicate a slight decline. There is also a difference in the seasonal characteristics shown by the two series.

In part, the difference between the two series is due to the fact that they are supposed to represent somewhat different things. The Bureau of the Census estimates relate only to persons 14 years of age and older, whereas the BAE estimates include persons 10 years of age and older. Furthermore, the Census definition of those who work "in agriculture" includes some who do not work on farms. Differences between the two series are presumably occasioned also by the fact that the two estimates are based on different methods of sampling. Though the sampling method used by the Census appears to be better, the fact that their sample is limited to only 68 counties, only a part of which are agricultural counties, is a serious limitation. Altogether the BAE estimates seem likely to be the more accurate of the two as representing the amount of employment on farms.

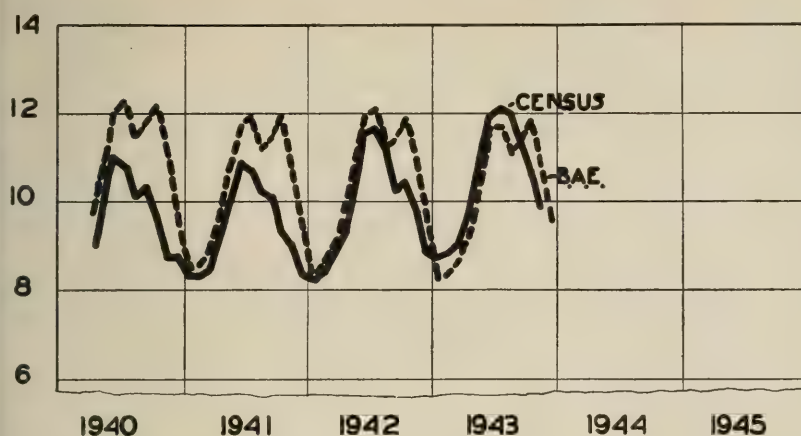


FIG. 4. "FARM" AND "AGRICULTURAL" EMPLOYMENT AS ESTIMATED BY THE BUREAU OF AGRICULTURAL ECONOMICS AND THE BUREAU OF CENSUS, 1940-1943

The upward trend of agricultural production and the downward trend of farm employment over the past 35 years is evidence of an increasing productivity per worker employed on farms. This long-run tendency is, no doubt, due to changes in the methods of agricultural production, including the great increase in the use of mechanical power on farms. In part, of course, this increase in production per worker on farms does not represent a true gain in efficiency. It is partly merely a shift in the location of those who are contributing to farm production. Men who make farm machinery and who provide the fuel and oil for farm tractors are contributing to agricultural production quite as much as are those who work on farms. Nevertheless, the increase in production per person employed on farms must be considered in appraising the probable future of farm employment, regardless of whether it represents a true gain in efficiency or merely a shift in the location in which work contributing to farm production is done.

Agricultural production per farm worker employed has increased very rapidly since 1938. This is shown by Figure 5. The rapidity of this increase has been due in part to favorable yields, in part to changes in methods of production, and in part, to the fact that in the past three years farm workers have been putting in abnormally long hours even for them. Much of the increase, consequently, cannot be looked upon as permanent. After the war farmers cannot be expected to work such long hours, yields will not always be so favorable, and farmers will have to spend much effort restoring soil fertility and repairing buildings

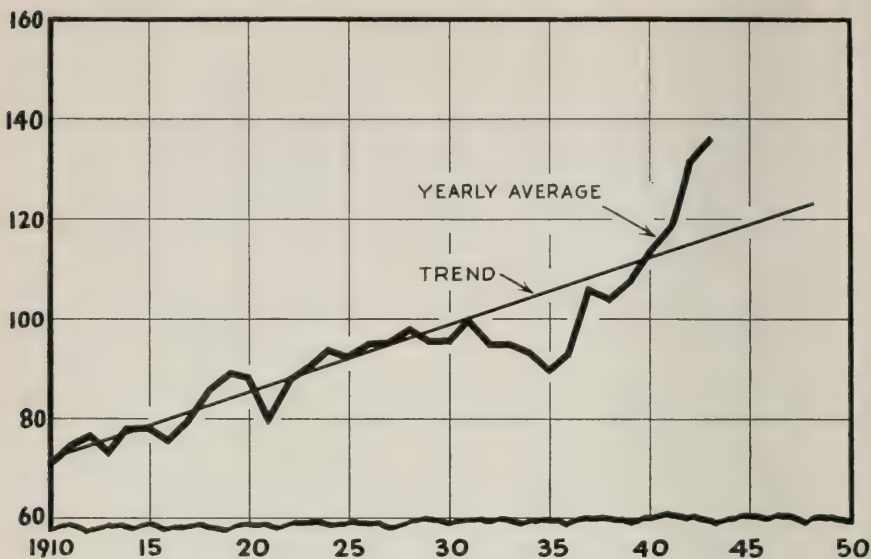


FIG. 5. INDEX OF AGRICULTURAL PRODUCTION PER FARM WORKER EMPLOYED, 1910-1943 (1935-1939 = 100)

and fences which have been allowed to deteriorate during the wartime emergency.

In consequence of these things we may expect that agricultural production will decline after the war without any decline in the number of people employed on farms. It does not seem likely, however, that there should be any great increase in the number of people employed on farms. The trends of farm employment which we have witnessed during the years past are not likely to be reversed following the war.

All this does not mean, of course, that there will not be a place for many returning service men on farms. Many men have remained at work on farms beyond the time when they would normally have retired. Women and boys have also been recruited for farm work because of the war emergency. It is to be expected, consequently, that there will be an unusually large number of people who will quit farm work after the war and this will make room for many men now in the armed services to return to farm work.

But there should not be any general program of providing work for returning service men by putting them on farms. Such a program would only result in failure and discouragement for the veterans. Jobs should be made available in producing goods for which there will be expanding

demand after the war rather than in agriculture. It is well recognized that "the demand for food is limited by the capacity of the human stomach." Postwar employment programs, if they are to be successful, must recognize the limitation of profitable employment in agriculture.

E. J. WORKING

Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1924-1929 = 100 by multiplying by .7151. ⁴Monthly Local Market Price Report, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ¹	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	124	114	116	94	110	98	91
1931.....	73	65	77	109	84	77	71	93	74	75
1932.....	65	48	52	95	60	57	60	72	51	58
1933.....	66	51	56	91	62	68	75	68	54	69
1934.....	75	65	76	99	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	99	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	104	142	146	140	144	168	162
1942.....	99	105	140	118	197	200	169	187	242	199
1943 Jan....	102	117	156	124	224	211	170	215	291	227
Feb.....	102	119	160	124	240	222	179	219	297	232
Mar....	103	123	164	125	260	255	204	224	305	235
Apr....	104	124	165	126	261	224	178	227	309	237
May....	104	126	165	126	258	244	194	231	314	238
June....	104	126	166	127	256	226	178	237	317	236
July....	103	125	166	128	256	195	152	236	315	239
Aug....	103	124	167	128	266	206	161	238	322	242
Sept....	103	124	170	128	242	215	168	214	328	243
Oct....	103	122	172	129	249	325	252	249	333	247
Nov....	103	121	170	130	256	315	242	250	336	247
Dec....	103 ¹¹	122	169	131	...	...	...	256	328	241
1944 Jan....	103 ¹¹	122	167	131	...	...	...	...	...	242 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			Feb. 1943	Current months		
	1935-39	1942	1943		Dec.	Jan.	Feb.
Corn, bu.....	\$.66	\$.77	\$.98	\$.89	\$1.06	\$1.07	\$ 1.07
Oats, bu.....	.31	.48	.66	.56	.78	.79	.79
Wheat, bu.....	.86	1.13	1.43	1.35	1.54	1.57	1.58
Barley, bu.....	.62	.74	1.00	.85	1.20	1.20	1.23
Soybeans, bu.....	.90	1.65	1.68	1.60	1.80	1.81	1.82
Hogs, cwt.....	8.52	13.37	14.07	14.90	13.10	13.10	13.20
Beef cattle, cwt.....	7.88	11.93	13.46	13.40	12.80	12.80	13.10
Lambs, cwt.....	8.36	12.28	13.57	14.20	13.40	13.60	13.90
Milk cows, head.....	58.00	102.00	129.25	126.00	126.00	126.00	126.00
Veal calves, cwt.....	8.66	13.63	14.40	14.90	13.80	13.90	14.30
Sheep, cwt.....	3.58	5.50	6.58	6.60	5.80	5.90	6.60
Butterfat, lb.....	.27	.39	.49	.48	.50	.49	.49
Milk, cwt.....	1.68	2.40	2.97	2.90	3.10	3.05	3.00 ¹¹
Eggs, doz.....	.19	.29	.36	.32	.41	.30	.30
Chickens, lb.....	.15	.19	.24	.23	.23	.23	.23
Wool, lb.....	.25	.40	.42	.40	.44	.43	.41
Apples, bu.....	1.08	1.53	2.49	2.00	3.00	3.10	3.40
Hay, ton.....	9.39	11.33	15.11	13.60	18.60	19.60	19.00
Potatoes, bu.....	.91	1.32	1.92	1.45	1.70	1.75	1.75

¹⁻¹²For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

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WISE USE OF WARTIME FAMILY INCOME¹

The way families use their net money income depends greatly on the customs and habits of the people around them. There are very few rules concerning these uses, although it is surprising how closely people follow certain patterns. But unusual circumstances such as war can change these patterns very quickly. The way people are living in countries that are active war areas tell us that.

The family with increased income has a greater responsibility in weighing choices in its use than the family whose income has remained unchanged or the family whose income has diminished. All three groups of families need to plan their use of income very carefully if they are going to maintain an adequate level of living during a period of rising prices, and also buy bonds, pay debts, and pay taxes.

Factors which influence use of farm family net income. Four factors which exert a great deal of influence on the use of a farm family's net income are the following:

(1) *The goals of the family*, their wants and desires, both long-time and short-time, are definite controls on the family purse. For example, one farm family's goals are the payment of the mortgage on the farm, a college education for the three children, remodeling the kitchen, purchase of new electric equipment, and a vacation trip to California. The family with such definite goals has a better opportunity to guide the use of income than a family without goals.

¹Abstract of a talk given on Agricultural Economics Program, Farm and Home Week, University of Illinois, February 1944.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

(2) *The place of the family in its life cycle* will influence the timing of these wants in life. The money for college education generally has to be available when the children are about eighteen years of age. The time for paying off the mortgage on the farm should not come during the years when it will compete too strongly with other family needs. We find from our family economics research² that during the first five years of married life, the average health expenditures of the account-keeping families are particularly high due primarily to the arrival of the babies in the family. The peak load on the family pocketbook generally comes during the twenty to twenty-five years married period for that is the time when nearly all the furniture and home equipment purchased during bride-and-groom days must be replaced. Also the older children's needs for high school and college drain the family purse during this period. The food, clothing, and transportation costs are at the peak, for the family has reached its maximum number.

Thus the number of years married or place in the life cycle has a decided influence on the use of income.

(3) *The irregularity of the farm income* from year to year has a tendency to limit fixed yearly uses of income. Farm families are naturally afraid of high fixed monthly electric service costs and high fixed principal and interest payment charges due every year because of the wide swings in income.

The irregularity of the income received during the year curtails regular monthly living expenditures generally to the level of the egg-and-cream money. But the advantage of receiving the major part of the income in one or two checks, such as corn and soybean checks on a grain farm, has a tendency to increase savings.

(4) *The amount of living obtained direct from the farm* in the form of food, fuel, and the use value of the farm dwelling supplements the net money income and makes possible a higher level of living than the net money income would indicate.

During the years of low income, as in 1933 and 1934, you would expect farm families to raise more of the food needed for family consumption and less during years of fairly high income as in 1937-1939. But apparently the families studying money management through family accounts attempt to produce about two-thirds of their family food supply regardless of changing income level. The established practice of having such protective foods easily accessible for family use is more of an influence than income level.

Even during 1942 and 1943, these families have only increased the amount of food produced to a minor extent because they were already doing an excellent job. More strawberries, raspberries and a few fruit

²Illinois Home Account Summaries 1939, 1940, 1941, 1942.

trees were planted in 1942 to increase food production and relieve transportation facilities.

Wartime use of income. Whether or not present decisions made on use of income are wise cannot be judged for many years to come. But the past experience of other farm families during major emergencies and over a period of years as shown by family account records can serve as valuable guides during the present emergency on wise use of family income.

The use of income by a group of farm families who have been keeping continuous records for 10 years, from the depression year of 1933 through the war year of 1942, gives valuable indications of how these families are controlling their income in the direction of their country's victory and their family goals.

What wartime adjustments have been made in connection with these four factors that influence the use of net money income?

(1) With increased farm income the families have speeded up the attainment of some of their goals, such as paying off mortgages and other debts, but delayed the remodeling of the house and buying equipment. These families have made a practice of saving a portion of their income every year but in 1942 they saved 57 percent of their disposable income, that is the net money income after interest and income taxes were subtracted. Nearly one-fourth or 22 percent of this disposable income went for debt retirement in excess of borrowings, 5 percent for life insurance premiums, 3 percent for land purchases, 10 percent for net increases in bank balances, and 17 percent for war bond purchases.

The purchase of war bonds will help insure reaching many of the delayed family goals in the postwar period as well as help to provide men and women in service with jobs. For example, one family has purchased \$10,000 worth of bonds earmarked for a new house and farm improvements after the war. Some families are earmarking bonds for installing running water, electricity, purchase of new furniture and college education in addition to those earmarked for farm machinery and new automobiles.

Even gifts of bonds have been earmarked for certain purposes. One husband in the group of account keepers gave his niece, age 12 years, and his nephew, age 15 years, each a small bond for Christmas. On the niece's bond he wrote: "Maybe 10 years from now, you may wish a formal dress for the senior ball," and on the nephew's: "Maybe 10 years from now you will be buying an engagement ring." Such bonds may give children a long-time viewpoint in planning the use of their money.

The average amount of money spent for living for the group keeping continuous records for 10 years varied from \$758 in 1933 to \$1891 in 1942. Even though these families spent about \$200 more in the war year

of 1942 than in 1941, they actually bought less goods and services in terms of a constant purchasing power of 1910-1914 dollars.³

Actually \$1212 worth of goods and services were bought in 1942 and \$1275 in 1941. The quantity of goods and services bought in 1942 correspond to the 1937 level of purchases. These families are doing an outstanding job in helping to prevent more inflation by paying debts, purchasing bonds, and limiting their spending to actual needs.

(2) All the families but four with children of college age have been obtaining their goal of a college education for the children. Not more than one-third of the parents had this opportunity but that has been part of the plan for the children. The college education for a few of the boys has been delayed due to fighting for Uncle Sam, either in service or producing food on the farm. Thus these families have planned in relation to their place in the life cycle for the college education of their children.

(3) The irregularity of the income, only one-fourth as much income on the average in 1933 than in 1942, has prevented large fixed payments for either investments or living. All but five of the group own some real estate—a house in town, or another farm—even though they are tenants on the land they are operating. One of their goals has been land ownership to partly offset the insecurity of such periods of low income as in 1933.

But a view of such irregular income would certainly prevent families from buying land at inflated prices and prevent contracting to pay large fixed payments each year.

In the living expenditures of the war year 1942 compared with 1941, operating expense increased slightly with increased use of electrical equipment as a labor saver. Expenditures for medical care, church, and community welfare increased while automobile expense declined.

The higher amount for medical care reflected the inclusion of additional physical examinations, in an attempt to keep well during war times when the services of doctors would be limited. It also included more memberships in hospitalization associations.

More giving to U.S.O., Red Cross, church and community affairs denotes the activities of these families on the home front.

Looking ahead. In looking ahead for the postwar period, these families who have been planning so carefully, conserving their material resources, their physical and mental well-being, will not be the ones who will rush into the market and buy inferior goods. They will be interested in mass production of quality goods at reasonable prices to give employment to the returned service men and produce a high level of living for families over a long period of time.

RUTH CRAWFORD FREEMAN,
Department of Home Economics

³Spending divided by index of prices paid by farmers for commodities used for family maintenance (1910-1914 = 100) U. S. Department of Agriculture, Bureau of Agricultural Economics.

EXTRA ACRES FROM CONSERVATION PRACTICES HELP MEET PRODUCTION GOALS

Yield increases in 1943. The equivalent of approximately 10 per cent more land in war crops was achieved on the contour operated farms in Illinois in 1943, a summary of farm account records revealed. Contour farming with terraces, contour farming with buffer strips, strip cropping, and contour farming the entire field with the same crop resulted in average yield increases of 8 to 14 percent for corn, soybeans, and oats in 1943 in 32 Illinois counties, thereby increasing the effective acreage in these crops. Specific increases in yields were 5.3 bushels of corn, 1.6 bushels of soybeans, and 5.3 bushels of oats from "around-the-hill" farming compared with "up-and-down the hill" farming on the same farms (Table 1).

Five-year average results. The benefits of contour farming in 1943 were somewhat below previous years' results, since rainfall during the early part of the crop season was not a limiting factor for crop growth. Average per acre increases for the five years 1939-1943 in Illinois for crops grown on the contour compared to up-and-down the slope were: corn, 7.5 bushels; soybeans, 2.7 bushels; and oats, 7.4 bushels (Table 2). Based on the average crop yields per acre for the account keeping farms from which these data were secured, "around-the-hill" farming averaged for the five years 1939-1943 the following percentage increases: corn, 13 percent; soybeans, 13 percent; and oats, 20 percent.

Conservation pays on all slopes. The importance of contour farming even the more gently sloping land is shown when the corn yield data

TABLE 1.—AVERAGE PER ACRE YIELDS ON THE CONTOUR AND NOT ON THE CONTOUR ON THE SAME FARMS, ILLINOIS, 1943^a

Item	Corn	Soybeans	Oats
Number of farms.....	93	14	20
Yield on contour (bu.).....	65.7	21.7	43.3
Yield not on contour (bu.).....	60.4	20.1	38.0
Number of farms on which crop on the contour yielded higher....	70	11	16
Difference in yield in favor of contouring (bu.).....	5.3	1.6	5.3

^aBased on farm account records from 32 counties.

TABLE 2.—AVERAGE PER ACRE YIELDS OF CROPS GROWN ON THE CONTOUR AND NOT GROWN ON THE CONTOUR ON THE SAME FARMS, FIVE-YEAR AVERAGE, 1939-1943

Item	Corn	Soybeans	Oats
Number of farms.....	102	12	28
Yield on contour (bu.).....	66.4	22.8	44.8
Yield not on contour (bu.).....	58.9	20.1	37.4
Number of farms on which crop on the contour yielded higher....	78	11	25
Difference in yield in favor of contouring (bu.).....	7.5	2.7	7.4

TABLE 3.—MAN LABOR COSTS AND POWER AND MACHINERY COSTS PER CROP ACRE ON CONTOUR-TILLED FARMS COMPARED WITH FARMS NOT CONTOUR TILLED, THREE-YEAR AVERAGE, 1940-1942

Item	Contour farming	Not contour farming
Man labor costs.....	\$9.93	\$10.40
Power and machinery costs.....	6.85	7.00

are broken down by slope groups. Contouring increased corn yields 9.6 bushels per acre on gently sloping land (land-use-capability class 2); 5.6 bushels on moderately sloping land (land-use-capability class 3); and 5.5 bushels on strongly sloping land (land-use-capability class 4).

Contour farming costs. In studying the farm operating costs resulting from the use of conservation practices, farms on which all or the major part of the farming operations were on the contour were matched with comparable neighboring farms on which none of the field operations was on the contour. Results of this study on 135 farms for the three years 1940-1942 show that power and machinery costs and labor costs per crop acre were practically the same on the two groups of farms (Table 3).

Wartime application of conservation practices. The 1944 goals call for 52 percent of Illinois' cropland to be planted to corn and soybeans for grain. Of Illinois' 24.8 million acres of cropland, only 11.6 million or 46 percent is level upland having less than 2 percent slope, 11.1 million acres or 45 percent has more than a 2 percent slope, and 2.1 million acres or 9 percent is tillable bottomland. If all of the level cropland (cropland with less than 2 percent slope and tillable bottomland) in Illinois is used according to wartime maximum land use recommendations, which include planting up to 80 percent of the best upland and 100 percent of the best bottomland in intertilled crops, and if 1944 goals are met, approximately 4.2 million acres or 32 percent of our total corn and soybeans for grain acreage will have to be grown on land having more than a 2 percent slope. While conservation practices are urgently needed on much of the land having less than 2 percent slope if serious sheet erosion is to be avoided, it is extremely important that erosion control practices be employed on the large acreage of land having more than a 2 percent slope that is being cropped during the war emergency, if irreparable damage is to be prevented.

E. L. SAUER

FOOD PROCESSING IN ILLINOIS

Food processing in Illinois is essentially an urban industry. The total number employed in food processing in April 1940 was divided according to residence as follows:

Urban	104,335
Rural — nonfarm	8,160
Rural — farm	1,531

Thus, over 90 percent of those employed in food manufacture lived in urban areas. If the census had been taken in the summer months, when the canning industry is active, employment in rural areas would have been larger.

Moreover, food processing tends to be concentrated in the larger population centers. Sixty-seven percent of the men and 79 percent of the women employed in the industry were in Cook County. The seven counties with more than 1,000 people employed in food processing in 1940 were, in order: Cook, St. Clair, Peoria, Macon, Tazewell, Madison, Sangamon. The 32 counties in which 200 or more people were employed in such industries April 1940 are shown in Table 1.

TABLE 1.—NUMBER OF EMPLOYEES IN FOOD AND KINDRED INDUSTRIES IN THE ILLINOIS COUNTIES EMPLOYING OVER 200 PERSONS, APRIL 1940^a

County	Men	Women	Total
1. Cook	58 109	21 683	79 792
2. St. Clair	4 392	844	5 236
3. Peoria	3 206	1 143	4 349
4. Macon	2 035	267	2 302
5. Tazewell	1 568	372	1 940
6. Madison	1 526	259	1 785
7. Sangamon	993	80	1 073
8. Lake	662	235	997
9. DuPage	753	156	909
10. Vermilion	693	136	829
11. Winnebago	693	104	797
12. Kane	714	80	794
13. Stephenson	602	235	837
14. Will	649	131	780
15. Adams	563	115	678
16. McLean	421	204	625
17. LaSalle	539	56	595
18. Rock Island	385	120	505
19. Marion	278	160	438
20. Champaign	347	53	400
21. Lee	338	55	393
22. Kankakee	315	32	347
23. Knox	285	57	342
24. Ogle	286	30	316
25. McHenry	345	15	260
26. Whiteside	222	30	252
27. Perry	220	24	244
28. Edgar	212	26	238
29. Coles	191	24	215
30. Clinton	180	30	210
31. Morgan	178	29	207
32. Randolph	196	7	203
State	86 691	27 335	114 026

^a16th Census of the U. S. 1940 Population, Second Series, Illinois.

Why is food processing an urban industry?

First, the development of a large scale food processing plant at any point makes for a considerable urban center. Chicago with its packing houses and Decatur with its corn and soybean processing plants are illustrations.

Second, labor supplies are available in larger centers.

Third, the bulk of our food is consumed in large centers. In 1940 about three-fourths of the population of Illinois lived in cities or villages with 2,500 or more population. Also, much food processed in Illinois moves on to other sections of the country. Either the raw product or the processed food has to be shipped and in many cases it is more economical to assemble the raw material before processing.

The following industries have tended to be centralized in larger urban centers: livestock slaughter and meat processing, grain and soybean milling, baking, and candy manufactures. It is apparently more economic to concentrate raw products from various sources and to do the processing at central points.

The principal exceptions to this tendency are: (1) The manufacture of dairy products which, with the exceptions of some butter and most ice cream, tends to be localized. The bulky, perishable nature of the raw product is the obvious reason. (2) Canning of vegetables to which access to raw materials is important. It was noted above that the use of April 1 figures omits much of the employment in the canning industry. (3) Provision for local needs involving simple operations, e.g., livestock slaughter, simpler types of bakery and confectionary products, and feed grinding. These employ a relatively small number of people in widely scattered communities. The extent of these operations up to the limits of the local needs depend primarily upon individual initiative, i.e., somebody sets himself up as a local butcher or baker. The widespread development of local locker plants has increased such opportunities by transferring some of the processing in connection with farmers' meat supplies from farms to village and by increasing the use of locally grown and slaughtered meat in the smaller urban and nonfarm rural communities. The potential market for such developments is perhaps one-third of the population of the state or about 2.6 million people. Presumably most of the people employed in "food processing" in the rural counties of the state are engaged in such activities.

Possibilities for expansion. In any community possibilities for expansion in employment in food processing depend on finding and developing an important industry which can be developed locally. This means reasonable access to raw materials, adequate labor supply, availability of other needed materials and services, such as power, fuel, water, etc., adequate capital, and men with the managerial ability needed to organize

and operate the business. Examples of such developments in Illinois in recent years are corn and soybean milling at Decatur, flour milling at Springfield (selected by national company as a desirable site because of railroad and raw material considerations), livestock slaughter at Danville, candy manufacture at Centralia, and increased vegetable canning at Rochelle (by a national food organization).

New developments are likely to be most successful when an industry is growing rapidly or new techniques are developed.

For an industry which is growing rapidly new facilities have to be developed or old ones expanded. The quick freezing of vegetables is an illustration. The recent development of the soybean industry is another. The possible shift from creameries using sour cream to whole milk plants in order to utilize the nonfat solids is an example of the development of new techniques which make for a decentralization of an industry.

On a smaller scale there are many opportunities in processing for local use. Here a changed situation which creates new opportunities as well as local initiative are of primary importance. Examples are the slaughter of livestock and processing of meats under the stimulus of freezer lockers, more local creameries to use whole milk, more feed grinding and mixing—particularly desirable in areas where feed grains are locally produced, possibly the drying of legume forage for roughages and meals, and seed cleaning and processing. Expansion up to the needs of local areas depend primarily on local opportunities, initiative, capital, and managerial ability. These developments will never be a factor of primary importance in employment, but they can provide many jobs in widely scattered communities and opportunities for enterprises—both privately and cooperatively owned. But, food processing as a major factor in employment is likely to be confined to urban centers—either of large or of moderate size.

L. J. NORTON

SUMMARY OF A SURVEY OF MILK PRICES IN ILLINOIS

An increased demand for milk, a supply inadequate to meet all demands, and price regulations are among the factors which have made the war-time movement of milk from farm to the final user appear confusing. Competition between dairy plants has meant that many plants have had to seek other and usually more distant sources of supply. Relaxation of health standards for milk and sales by manufacturing plants to bottling plants have been common. A difference in either farm prices or retail prices makes abnormal movements possible. In order to secure facts on price variations, Illinois farm advisers were requested to supply information on prices paid by plants in their counties for the month of October 1943. A summary of these data is presented herein (Table 1). An im-

TABLE 1.—VARIATION IN MILK PRICES IN DIFFERENT AREAS OF ILLINOIS
October 1943

Area	Range in prices* paid farmers by			Range in	
	Manufacturing plants	Bottling plants		Retail price	Dealers' margin
	(\$ per cwt.)	(\$ per cwt.)	(¢ per qt.)	(¢ per qt.)	(¢ per qt.)
Northwest.....	2.38-2.645	2.50-3.17	5.32-6.82	11.0-14.0	5.62-8.52
Northeast.....	2.45-3.22	2.40-3.20	5.16-6.88	12.0-16.5	6.12-9.62
West.....	2.275-2.75	2.345-2.65	5.04-5.70	11.0-13.0	5.73-7.96
Central.....	2.31-2.70	2.485-2.89	5.34-6.21	12.5-15.0	5.79-8.79
East.....	2.31-2.38	2.345-2.59	5.04-5.56	11.4-14.0	6.02-8.52
East Southeast.....	2.17-2.73	2.10-3.00	4.52-6.45	11.0-13.0	5.20-7.95
West Southwest.....	2.60-3.10	2.12-3.61	4.56-7.76	11.0-15.0	3.80-9.41
Southwest.....	2.60-2.71	2.45-3.61	5.27-7.76	10.0-15.0	3.55-8.73
Southeast.....	2.40	2.10-2.45	4.52-5.27	11.5-14.0	6.34-8.84

*All prices converted to a 3.5 percent butterfat basis.

proved supply condition due to milk conservation measures and the seasonal increase in production have brought some decline in abnormal movements, but prices have not changed greatly since October.

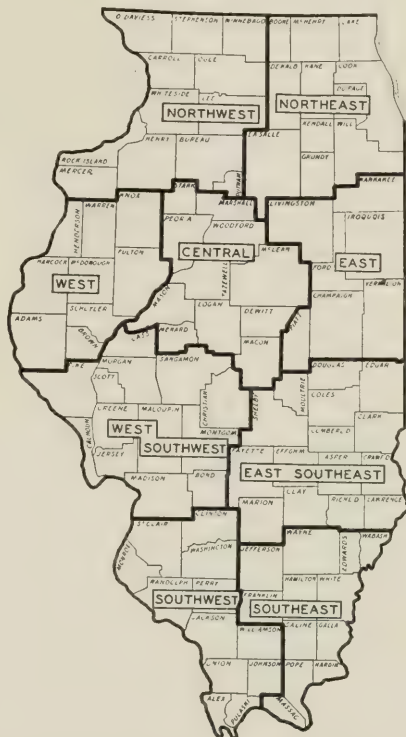
The Southwest and West Southwest areas include most of the Illinois portion of the St. Louis milkshed, and milk from the Northeast and Northwest areas is sold to plants in Chicago, Rockford and the Quad-Cities (Moline, East Moline, Rock Island and Davenport, Iowa). Prices paid by both bottling and manufacturing plants in these areas were the highest in the State. The prices paid by bottling plants in the areas most remote from the major fluid milk markets—the eastern half of the State excluding that part in the Chicago milkshed, and the West area—were the lowest paid. Manufacturing plants in the East and Southeast areas paid the lowest prices, thus reflecting the producers' limited outlet for fluid milk; there are also fewer manufacturing plants in these areas because milk production per square mile is lower, thus competition from that source is less.

There was a greater difference between the highest and lowest price paid by bottling plants in the West Southwest and the Southwest areas than in the other areas. This difference was least in the West, Central, East and Southeast areas. Among manufacturing plants the smallest variation was reported in the East and Southwest areas.

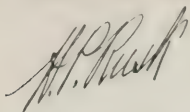
Retail milk prices vary widely from market to market, but the large cities tend to have the highest prices per quart. Thus Chicago has a 16½ cent price followed by St. Louis, Mo. with 15½ cents, and Peoria and Springfield at 15 cents. However, other large cities in Illinois, including Rockford, Decatur, and the Quad-Cities have a 14 cent price, which is the same as in many smaller cities.

The greatest variation in retail milk prices occurred in the Southwest area with a low of 10 cents and a high of 15 cents, followed by a $4\frac{1}{2}$ cent spread in the Northeast area and four cents difference in the West Southwest area. The least variation of retail prices, from 11 to 13 cents, existed in the West and East Southeast districts. *However, a difference of only two cents per quart represents an equivalent difference of 93 cents per hundredweight, excluding shrinkage in bottling.*

Administration and adjustment of maximum price regulations governing fluid milk prices in Illinois have been complicated by the fact that such regulations do not apply to those prices established by a federal marketing agreement, as for Chicago, St. Louis and the Quad-Cities, nor to those paid by dairy manufacturing plants. However, the latter are indirectly limited in the prices they can pay because there are price regulations applying to nearly all manufactured dairy products. The maximum price that can be paid fluid milk producers not selling under a federal marketing agreement is the highest price paid in January 1943 or \$2.75 per hundredweight for 4.0 percent milk, whichever is higher. OPA has made and will make adjustments in the ceiling price for particular markets if adequate evidence justifying such action is presented. The data found in this survey indicate that some additional adjustments may be necessary, and they also disclose that in some markets the maximum price allowable is not being paid. One future objective of the dairy industry in Illinois may well be directed toward bringing about less variation among producer prices and consumer prices throughout the State.



R. J. MUTTI



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	124	114	116	94	110	98	91
1931.....	73	65	77	109	84	77	71	93	74	75
1932.....	65	48	52	95	60	57	60	72	51	58
1933.....	66	51	56	91	62	68	75	68	54	69
1934.....	75	65	76	99	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	99	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	104	142	146	140	144	168	162
1942.....	99	105	140	118	197	200	169	187	242	199
1943 Feb....	102	119	160	124	240	222	179	219	297	232
Mar.....	103	123	164	125	260	255	204	224	305	235
Apr.....	104	124	165	126	261	224	178	227	309	237
May.....	104	126	165	126	258	244	194	231	314	239
June.....	104	126	166	127	256	226	178	237	317	237
July.....	103	125	166	128	256	195	152	236	315	240
Aug.....	103	124	167	128	266	206	161	238	322	242
Sept.....	103	124	170	128	242	215	168	214	328	244
Oct.....	103	122	172	129	249	325	252	249	333	247
Nov.....	103	121	170	130	254	315	242	251	336	247
Dec.....	103	122	169	131	256	277	211	256	328	241
1944 Jan....	103 ¹¹	122	167	131	264	257	196	254	328	243
Feb.....	104 ¹¹	122	168	132	...	...	...	...	328	243 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			April 1943	Current months		
	1935-39	1942	1943		Feb.	Mar.	Apr.
Corn, bu.....	\$.66	\$.77	\$.98	\$.98	\$ 1.07	\$1.08	\$1.08
Oats, bu.....	.31	.48	.66	.62	.79	.80	.80
Wheat, bu.....	.86	1.13	1.43	1.36	1.58	1.58	1.59
Barley, bu.....	.62	.74	1.00	.88	1.23	1.23	1.23
Soybeans, bu.....	.90	1.65	1.68	1.64	1.82	1.87	1.87
Hogs, cwt.....	8.52	13.37	14.07	14.50	13.20	13.50	13.30
Beef cattle, cwt.....	7.88	11.93	13.46	13.80	13.10	13.20	13.50
Lambs, cwt.....	8.36	12.28	13.57	14.20	13.90	14.30	14.30
Milk cows, head.....	58.00	102.00	129.25	132.00	126.00	130.00	133.00
Veal calves, cwt.....	8.66	13.63	14.40	14.20	14.30	14.30	14.20
Sheep, cwt.....	3.58	5.50	6.58	7.50	6.60	7.00	7.10
Butterfat, lb.....	.27	.39	.49	.50	.49	.49	.49
Milk, cwt.....	1.68	2.40	2.97	2.85	3.05	3.00	2.95
Eggs, doz.....	.19	.29	.36	.33	.30	.30	.26
Chickens, lb.....	.15	.19	.24	.24	.23	.24	.23
Wool, lb.....	.25	.40	.42	.41	.41	.40	.41
Apples, bu.....	1.08	1.53	2.49	2.60	3.40	3.50	3.60
Hay, ton.....	9.39	11.33	15.11	14.30	19.00	18.60	19.50
Potatoes, bu.....	.91	1.32	1.92	2.20	1.75	1.75	1.75

¹⁻¹²For sources of data in tables see March issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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THE COST OF PRODUCING HEMP IN ILLINOIS IN 1943

Two thousand eight hundred forty-five Illinois farmers sowed a total of 42,000 acres of hemp in 1943. To all but a few of them hemp was a new crop, but they responded to the government's request for hemp fiber to meet war needs when North Africa was in the hands of the enemy and the supplies of fiber from that area and other areas farther east were cut off.

Because hemp was a new crop a study of its production requirements and costs was made to help answer questions in the minds of those interested in producing it. The first step taken to obtain cost figures was to make a random sample list of growers by taking the name of every tenth grower on the list in the office of War Hemp Industries, Inc. Each grower in this random list was asked to cooperate in the hemp cost study. Those who indicated a willingness to cooperate were furnished cost forms which they filled out during the crop season under the direction of a field man from the University of Illinois. One hundred twelve growers completed their cost records in enough detail and accuracy to be usable; they sowed 3,345 acres of hemp or an average of approximately 30 acres per farm.

Cost Farms Well Distributed Throughout Producing Area

There were 11 mill sites with adjacent hemp producing areas established in Illinois by War Hemp Industries, Inc. (Fig. 1). The response on the part of farmers to the request that they keep cost records on their hemp crop varied from 16 in mill area 8 to 7 in each of the mill areas 5 and 7.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

The 1943 growing season was characterized by heavy May rainfall in every mill area. This delayed the sowing of hemp on a good many farms until the first week in June. The top soil of fields that were sown early in

May became packed by the heavy rains, and this condition together with the saturated condition of the soil over the whole hemp-growing area resulted in an irregular growth of the crop in fields where low spots existed. The total May precipitation was heavier in the central than in the northern portion of the state.

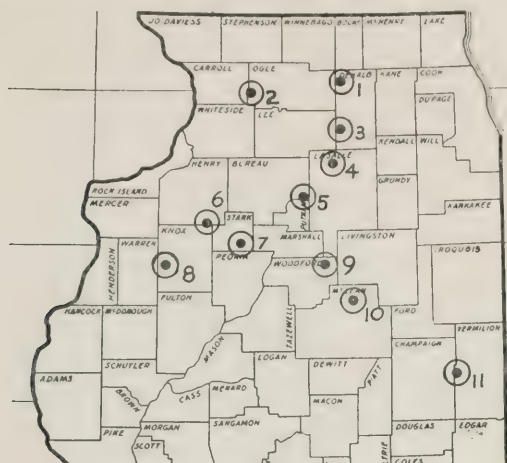


FIG. 1.—LOCATION OF 11 HEMP MILLS IN ILLINOIS

Acre Cost Computed on Basis of Acres Sown

One of the requirements of growing hemp was that each field have a border on all sides of sufficient width to allow the hemp cutting machinery to make the first trip around the field without interference from fences, hedges, or adjoining crops. The borders were usually plowed and worked down when the seedbed for hemp was prepared, and they were later sown to crops that could be removed before hemp harvest began. Soybean hay was found in most borders where cost records were kept. The cost of plowing and working down the borders into a seedbed was included in the cost of producing hemp; but it was assumed that the crop from the border would pay for planting and harvesting that part of the field, and therefore costs and income of the border area were disregarded after the seedbed was prepared.

The cost of growing, harvesting, and delivering hemp was \$55.02 per acre sown on the 112 cost farms, and the average cost per ton was \$21.19 (Table 1). Although the yield of hemp on these farms was higher by .4 of a ton per acre sown than it was for the state as a whole, tests show that there was a strong tendency on the 112 farms for acre costs to increase as the yield of hemp rose. For each ton increase in yield per acre, the cost per acre increased on the average \$9.33.¹

¹When X = cost per acre in dollars and Y = yield in tons per acre, the average relationship between yield and cost may be expressed as follows: $X = 31.312 + 9.3297 Y$. In this equation, X is taken as the dependent variable, hence the above equation expresses the regression of X on Y .

TABLE 1.—COST OF PRODUCING HEMP ON 112 FARMS IN ILLINOIS IN 1943

Items	
Acres sown to hemp.....	29.8
Yield per acre (tons).....	2.6
Labor and power per acre sown	
Man hours.....	19.4
Horse hours.....	.3
Tractor hours.....	6.1
Truck miles.....	11.4
Auto miles.....	.8
Twine (lb.).....	2.9
Cost items per acre sown	
Growing cost	
Man labor.....	\$ 1.47
Tractor use.....	1.61
Horse use.....	.06
Auto use.....	.03
Farm machinery.....	.82
Seed.....	12.52
Manure and fertilizer.....	2.45
Hail insurance.....	.19
General overhead expense.....	3.88
Total growing cost.....	\$ 23.03
Cutting, turning, binding, shocking cost	
Mill machines and operators (rental).....	\$ 4.49
Man labor.....	4.54
Tractor use.....	1.43
Truck and auto use.....	.01
Farm machinery.....	.02
Twine.....	.40
Total harvesting cost.....	\$ 10.89
Loading and delivering cost	
Custom delivering.....	\$ 4.04
Man labor.....	3.83
Truck use.....	.38
Tractor use.....	.80
Trailer use.....	.21
Auto use.....	.01
Horse use.....	.02
Total loading and delivering cost.....	\$ 9.29
Cost of growing, harvesting, loading and delivering.....	\$ 43.21
Taxes.....	1.56
Interest on land at 5%.....	10.07
Total cost.....	\$ 54.84
Trips for sign-up and instructions.....	.18
Grand total cost.....	\$ 55.02
Income per acre sown ($2.597 \times \$42.90$).....	\$111.42
Net profit per acre sown.....	\$ 56.40
Net cost per ton.....	\$ 21.19

Growing cost. It required 2.8 man hours, 2.5 tractor hours and .2 horse hours to prepare the seedbed and sow an acre of hemp. During the months of ground preparation and sowing, the monthly wages paid to hired men plus the perquisites in the form of living quarters, garden plot, and farm produce amounted to \$.53 an hour of work performed. Tractors of varying drawbar horsepower were used. On the basis of records kept on farms in east central Illinois, the hourly cost of operating tractors of different sizes and makes was determined and these rates were then applied to tractors of like size and make in the production of hemp. The cost of operating all tractors used in ground preparation and sowing seed was \$.63 an hour. Horse labor was charged at \$.25 an hour. On the average, six-tenths of a mile of truck or auto travel was used in going to the mill headquarters to secure seed, and in other travel connected with preparing the seedbed and sowing seed. A charge of \$.05 a mile was made for truck and auto in this type of travel.

Seed was obtained through War Hemp Industries, Inc., and when it showed 90 percent germination, growers were advised to sow 55 pounds an acre. Each grower was charged for his original supply of seed, but no charge was made for seed obtained to replant part or all of a field. If it was found advisable to abandon any acreage as the season progressed, the grower was given a credit on his seed bill for the seed that was sown on abandoned land based on the number of acres abandoned in relation to the acres sown from the original supply of seed.

Machinery used to prepare the seedbed and sow the crop was, in the main, the same as that used to put in soybeans. Eighty-seven percent of the growers who kept cost records used a drill; the rest broadcast their seed with a variety of oat seeders.

Barnyard manure made up 65 percent of the manure and fertilizer item shown in Table 1. The charge made for manure spread on hemp land was \$.75 a spreader load plus the grower's cost of applying the manure. The benefits derived from the manure were extended over a four-year period in declining amounts. If hemp was the first crop grown after manure was applied, 40 percent of the cost of the manure was charged against the hemp; if it was the second crop, 30 percent was charged; if the third crop, 20 percent; and if the fourth crop, 10 percent.

Commercial fertilizer made up 18 percent of the manure and fertilizer cost. Only mixed commercial fertilizer applied in the spring of 1943 was charged to 1943 hemp. Thirteen of the 112 growers applied mixed commercial fertilizers in 1943, and seven of the 13 used a 3-12-12 mixture.

Limestone accounted for 10 percent of the manure and fertilizer cost. Ten percent of the cost of limestone applied within ten years before 1943 was charged to the hemp crop. Rock phosphate made up 7 percent of the manure and fertilizer cost. If applied at the rate of one ton or more an

acre, rock phosphate was charged at the rate of 10 percent annually; if applied in amounts less than one ton an acre, it was charged at the rate of 200 pounds a year.

A cost item of general overhead expense was included, because on every farm there are some expenses that are difficult, if not impossible, to prorate to the branch of the farm business responsible for the expense. A few examples are taxes on the land on which the house and other buildings are located, upkeep of line fences, cost of cutting weeds along the road and fence rows and keeping the road from the house and barn to the highway in good condition, farm bureau dues, telephone bills and other expenses of a similar nature that are not incurred for any particular branch of the farm business but are helpful in making farming a success. In farm accounting the usual method of distributing general overhead expense is to prorate it among productive enterprises on the basis of man hours spent on each. Detailed farm cost accounting studies in east-central Illinois show overhead expense in 1943 to be \$.20 an hour of productive man labor.

Cutting, turning, binding, and shocking cost. Hemp harvesting operations, which consisted of cutting, turning, binding and shocking, cost \$10.89 per acre sown. The rental fee for cutting and binding machines (including operator) which were obtained from the mill, was \$5.00 for each acre harvested, but the actual cost was only \$4.49. The reasons were that 8.9 percent of the acreage sown was abandoned and in a few instances the rental rate was lowered because an operator did not accompany the machines or because a few growers bound some or all their hemp by hand.

In the harvesting operations, man labor cost \$4.54 per acre sown (in addition to operators of cutting and binding machines, whose cost was included in the rental fee). Wages paid for farm labor during harvesting averaged \$.56 an hour. Forty-two and one-half percent of the growers did not turn their hemp. Thirteen percent did not shock any of the crop, and a few shocked only part of it. The total hours of man labor (both mill men and farmer's men) used in harvesting was 8.8, and 2.2 tractor hours were used as drawbar power to operate the machines. Two and nine-tenths pounds of twine were used to bind the 2.6 tons harvested per acre sown.

German prisoners were used to turn hemp on seven cost farms and to bind hemp by hand on six. This labor was paid for at the prevailing wage for the kind of work they performed. Wherever prisoners were used it was necessary that the farmer pay about \$.20 an hour above current wages for the time of a camp supervisor who accompanied every 6 to 8 prisoners.

Loading and delivering cost. About three-fifths of the hemp pro-

TABLE 2.—DISTRIBUTION OF PRODUCTION COSTS OF HEMP PER TON
(112 ILLINOIS FARMS, 1943)

Cost groups	Number of farms	Number of tons produced	Percent of Production	
			In each cost group	Having costs of upper limit of group or less ^a
\$13.00 - \$16.99.....	14	1887	21.7	21.7
17.00 - 20.99.....	33	3161	36.4	58.1
21.00 - 24.99.....	31	1896	21.9	80.0
25.00 - 28.99.....	14	1062	12.2	92.2
29.00 - 32.99.....	6	332	3.8	96.0
33.00 - 36.99.....	6	156	1.8	97.8
37.00 - 40.99.....	4	131	1.5	99.3
41.00 - 44.99.....	3	46	.5	99.8
45.00 - 48.99.....	1	17	.2	100.0

^aAccumulative percent.

duced on the farms in this cost study was delivered by custom trucks; of the remainder, more was delivered with tractors and trailers than with the grower's own truck. The total cost of loading and delivering was \$9.29 for each acre sown. The largest single item of cost in this classification was \$4.04 paid to custom truckers. Man labor, in addition to custom truckers, cost \$3.83 an acre. Wages paid for farm labor during loading and delivering averaged \$.64 an hour. Total man hours, including both truckers and grower's men, were 7.8 an acre. All trucks travelled an average of 11.3 miles an acre in delivering the portion of the crop hauled on trucks. In addition, tractors with trailers were used 1.4 hours an acre in delivering hemp.

Land charge. The land charge totaled \$11.63 an acre. Taxes were \$1.56, and interest at 5 percent on an average valuation of slightly more than \$201 an acre made up the remaining \$10.07. Each cooperator was asked to place a conservative valuation on his land; these valuations varied from a low of \$100 an acre on one of the 112 farms to a high of \$250 on six farms.

Seed and Man Labor Major Items of Cost

In the operating expenses of \$43.21 per acre (Table 1), the cost of seed was 29 percent; man labor, 22.8 percent; rental of mill machinery, 10.4 percent; payment to custom truckers for hauling, 9.3 percent; general farm overhead expense, 9 percent; and tractor power 8.9 percent. The cost of seed or of labor therefore averaged from about $2\frac{1}{4}$ to nearly 3 times that for the next largest item involved in the total cost of producing hemp on the farms included in the study.

Hemp Costs Varied From Farm to Farm

The costs of producing a ton of hemp were found to be widely differ-

TABLE 3.—COST AND QUALITY OF HEMP RELATED TO YIELD PER ACRE

Yield group (tons per acre)	Average yield per acre (tons)	Cost per acre	Cost per ton	Percent of hemp in Grades 1 and 2	Number of farms	Acres of hemp per farm
.5- .99 . . . . .	.77	\$30.30	\$39.34	26.1	5	22.4
1.0-1.49	1.30	43.99	33.93	28.1	12	27.0
1.5-1.99	1.76	47.15	26.75	48.2	14	29.3
2.0-2.49	2.30	54.14	23.59	51.5	24	27.9
2.5-2.99	2.77	57.60	20.78	75.5	25	35.2
3.0-3.49	3.25	60.04	18.47	88.8	12	29.9
3.5-3.99	3.72	64.43	17.30	97.1	13	26.5
4.0-4.49	4.14	66.39	16.03	99.5	6	34.2
4.5-4.99	4.50	67.83	15.06	100.0	1	40.0

ent from farm to farm in the same area even though weather and price levels under which the farms were operated were identical, and the types of soil varied but little. The differences in productivity of the land on individual farms may have developed largely from the way this land had been handled over a period of years. Acre costs varied from a low of \$26.20 to a high of \$86.89, and ton costs varied from a low of \$13.17 to a high of \$46.42. The amounts of hemp produced at different cost levels are shown in Table 2. One of the causes for differences in costs per acre of hemp, of course, is the difference in yield and resultant difference in the amount of labor and power necessary to turn, bind, shock, and deliver the crop. Occasionally differences in hemp costs from farm to farm in the same locality were due to unavoidable causes, such as storms or hand binding when machines for that job were not available; but in most cases differences in costs were the result of differences in managing ability of the hemp growers.

As has already been indicated there was a strong tendency for acre costs to rise as yield went up, however the acre costs did not rise at as rapid a rate as yields did. The rains in May made it difficult to secure a good seedbed without working the ground more times than in a normal spring. Extra care and expense in seedbed preparation showed in the yield of hemp straw. In the first place there was less abandoned acreage on those farms where time and expense were not spared in manuring, disking and working up a good seedbed. A good seedbed also gave a better stand of plants and gave the plants a more uniform start early in growth than a poor seedbed. After harvesting operations started yield bore an even more direct relationship to acre costs than it did before harvest. Table 3 shows the relationship of acre yields to total cost per acre.

The care and management that produced the higher hemp yields also gave hemp straw of higher grade (Table 3). Less than 50 percent of the hemp straw fell into Grades 1 and 2 where acre yields were below two tons; whereas over 88 percent of the straw fell into the two top grades where acre yields were three tons or higher. It is only natural that hemp straw from fields which will yield three tons or more an acre compared

TABLE 4.—PERCENT OF HEMP BY GRADES PRODUCED ON COST FARMS AND ON ALL FARMS IN ILLINOIS, 1943

Grades	Contract price per ton	Percent of hemp in each grade	
		112 cost farms	All farms in Illinois
		(percent)	(percent)
1.....	\$50	45.7	38.7
2.....	40	28.6	27.7
3.....	35	18.6	22.9
4.....	30	7.1	10.7
Average price received per ton.....		\$42.90	\$41.66

with straw from fields of low yield will have more length, a finer stalk, and fewer weeds in the bundle.

The Grade of Hemp From Cost Farms Was Slightly Higher Than the State Average

The grade of hemp from the cost farms was enough higher than the state average to result in the 112 growers receiving an average price per ton 3 percent above that for the state. The hemp from the cost farms sold for \$42.90 a ton or \$1.24 above the state average. The principal advantage gained by grade differences was in the fact that the farmers who kept costs were farthest above the average grower in the amount of his crop that qualified for Grade 1. It will be noted by the data in Table 4 that the spread in price per ton between Grades 1 and 2 was twice the spread between any of the other grades.

Hemp Does Best on Fertile Soil

Supplemental records of crops raised and of soil treatment on the hemp land from 1940 through 1943 were supplied by the 112 growers. A preliminary study of these records has shown that the highest yields and the hemp of highest grade were produced on land where legume hay or legume pasture was produced in 1942 and these legumes plowed under for hemp. There were also higher hemp yields following soybeans than following either corn or oats. A comprehensive analytical study is being made of the influence of soils, of preceding crops, and of soil treatment on hemp yields and quality. This more thorough study should throw additional light on the whole subject of the influence of soils and soil treatment on hemp yields and quality.

Good Margin Above Cost Is Needed if Hemp Is to Compete Successfully With Other Corn Belt Crops

It is of interest to find that most of the hemp on the cost farms was produced and delivered for less than \$30 a ton (Table 2). However, a

farmer would have had to produce $2\frac{1}{4}$ tons of Grade 2 hemp per acre at the average cost of \$21.19 a ton to equal the margin of profit from the same acre if it had produced 75 bushels of corn for sale on the cash market at 1943 prices. He no doubt would have had to increase materially this hemp yield at average costs and prices if the crop were to equal the profit from an acre of corn marketed through livestock in 1943. The margin of profit from an acre of hemp yielding nearly two tons would have just about equaled the profit from an acre of 30-bushel soybeans at 1943 costs and prices.

It appears as though there may be a place for hemp in corn belt agriculture. The success of the crop from the farmer's standpoint rests largely in his ability to secure good yields of high grade hemp straw. The price for the crop, however, will have to continue high enough to compete with other crops which can be produced on this fertile corn belt land if hemp continues to be grown on it following the war.

R. H. WILCOX

RECENT TRENDS OF PRICES AND WAGES

Charts comparing the courses of prices and wages in the two World War periods were last published in the April 1943 issue of *Illinois Farm Economics* (No. 95, pp. 450-455). During the period of a little more than a year which has elapsed, the trends which were then apparent have continued.

Generally speaking, prices and wage rates have continued to rise, but the rise since the beginning of the current war has been somewhat less than during the corresponding period following the beginning of World War I.

Figure 1 shows the courses of prices of "all commodities other than farm products and foods" from 1914 to 1920 and from 1939 to date. It is with such commodities that our methods of price control appear to have been most effective. The rate

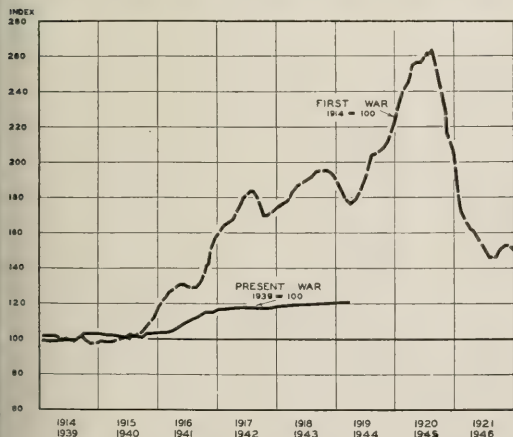


FIG. 1.—WHOLESALE PRICES OF ALL COMMODITIES OTHER THAN FARM PRODUCTS AND FOODS IN FIRST WORLD WAR AND PRESENT WAR

of advance has been very slow since the beginning of 1942 and the prices of such products now average little more than 20 percent above their 1939 level.

Wholesale prices of farm products have recently averaged about 90 percent higher than in 1939 (Fig. 2). They have, however, advanced less rapidly during the past two years than in 1941. Furthermore, they have not advanced as much since 1939 as they did from 1914 to 1919.

In comparing the extent to which the two indexes have risen since 1939 it should be borne in mind that the index of prices of "all commodities other than farm products and foods" no longer has the same significance as formerly. Wartime shifts

in the production of different manufactured products have been very great. Therefore, the prices of some products which are given a great deal of weight in the index no longer have much importance. Passenger automobiles are an example. On the other hand some products which now constitute a large part of the total manufacturing output are not even included in the price index.

The course of wage rates during the current war has broken away from the course followed during the First World War. This is shown by Fig. 3. A year ago the divergence was not sufficient to be clearly significant. In March 1944, however, the wage rate index of the Federal Reserve Bank of New York was about 45 percent above the 1939 average compared with 63 percent over the 1914 average in February 1919. The chart suggests, consequently, that wage and price policies have had a marked influence in retarding the rise of wage rates in spite of the great degree of credit inflation.

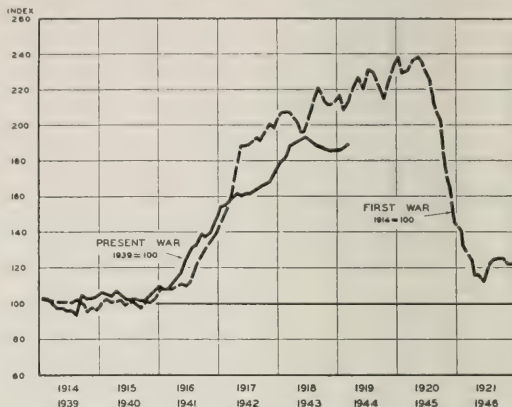


FIG. 2.—WHOLESALE PRICES OF FARM PRODUCTS IN FIRST WORLD WAR AND PRESENT WAR

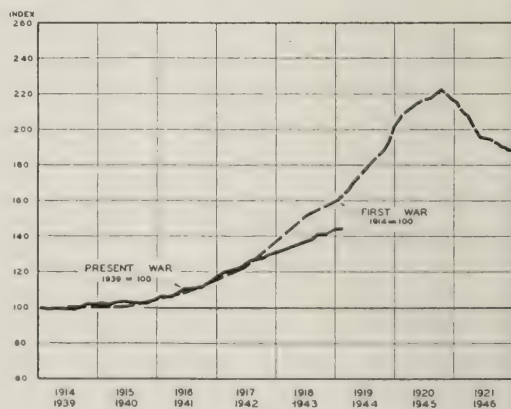


FIG. 3.—WAGE RATES IN FIRST WORLD WAR AND PRESENT WAR

Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1924-1929 = 100 by multiplying by .7151. ⁴Monthly Local Market Price Report, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	124	114	116	94	110	98	91
1931.....	73	65	77	109	84	77	71	93	74	75
1932.....	65	48	52	95	60	57	60	72	51	58
1933.....	66	51	56	91	62	68	75	68	54	69
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Sept.....	103	124	170	128	242	215	168	214	328	244
Oct.....	103	122	172	129	249	325	252	249	333	247
Nov.....	103	121	170	130	254	315	242	251	336	247
Dec.....	103	122	169	131	256	277	211	256	328	241
1944 Jan....	103	122	167	131	264	257	196	254	328	243
Feb.....	104	122	168	132	258	328	244
Mar.....	104 ¹¹	124	170	132	324	242
Apr.....	104 ¹¹	124	169	132	324	240

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			May 1943	Current months		
	1935-39	1942	1943		Mar.	Apr.	May
Corn, bu.....	\$.66	\$.77	\$.98	\$.99	\$1.08	\$1.08	\$ 1.08
Oats, bu.....	.31	.48	.66	.61	.80	.80	.81
Wheat, bu.....	.86	1.13	1.43	1.36	1.58	1.59	1.59
Barley, bu.....	.62	.74	1.00	.88	1.23	1.23	1.21
Soybeans, bu.....	.90	1.65	1.68	1.65	1.87	1.87	1.88
Hogs, cwt.....	8.52	13.37	14.07	14.00	13.50	13.30	13.00
Beef cattle, cwt.....	7.88	11.93	13.46	14.00	13.20	13.50	13.70
Lambs, cwt.....	8.36	12.28	13.57	14.20	14.30	14.30	14.30
Milk cows, head.....	58.00	102.00	129.25	135.00	130.00	133.00	129.00
Veal calves, cwt.....	8.66	13.63	14.40	14.60	14.30	14.20	14.20
Sheep, cwt.....	3.58	5.50	6.58	7.30	7.00	7.10	6.60
Butterfat, lb.....	.27	.39	.49	.49	.49	.49	.49
Milk, cwt.....	1.68	2.40	2.97	2.85	3.00	2.90	2.85 ¹¹
Eggs, doz.....	.19	.29	.36	.33	.30	.26	.26
Chickens, lb.....	.15	.19	.24	.24	.24	.23	.24
Wool, lb.....	.25	.40	.42	.43	.40	.41	.41
Apples, bu.....	1.08	1.53	2.49	2.75	3.50	3.60	3.60
Hay, ton.....	9.39	11.33	15.11	14.70	18.60	19.50	19.10
Potatoes, bu.....	.91	1.32	1.92	2.55	1.75	1.75	1.65

1-12For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

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LESSONS FROM THE CORN SITUATION

Several lessons are to be learned from a review of the present tight corn situation. First, it illustrates how quickly supply and demand conditions can change. On October 1, 1942 the United States corn supply was estimated at 3.6 billion bushels, the largest on record, while a year later it was estimated to be 3.4 billion bushels, a 5 percent reduction. During approximately this same period the number of grain-consuming animal units on farms in the United States increased by 7 percent. As a result of changes in the corn supply and in livestock numbers, the liberal feeding of corn, and its heavy use for industrial purposes, the supply of corn on farms January 1, 1944 per grain consuming animal unit was 17 percent less than on January 1, 1943.

Second, the corn situation illustrates the fact that we can't have favorable livestock feeding ratios indefinitely and still have adequate feed. This is because the production of feed supplies cannot be increased as rapidly as livestock production will be expanded under profitable feeding conditions. From January, 1941 until December, 1943, a period of 35 months, the hog-corn price ratio at Chicago was continuously above the 1923-1942 average. During this period the number of hogs on farms in the United States increased from 60 million to 84 million head, or by 39 percent. Production of corn from 1940 to 1943 increased 25 percent, in part because of a 4 bushel higher yield per acre in 1943 than in 1940.

In Illinois the number of hogs on farms increased 48 percent from January 1, 1941 to January 1, 1944 while corn production increased 30

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

percent between 1940 and 1943. Corn production per hog was reduced from 62.6 bushels to 55.0 bushels.

A third point, closely related to the second, is the fact that *with price ceilings on corn* the pricing system cannot function normally in maintaining a balance between livestock numbers and feed supplies. Over a period of years the ratio of feed prices to livestock prices is closely associated with the amount of feed per head of livestock. This is illustrated with corn and hogs in Figure 1. In recent years the relationship between the hog-corn price ratio and the corn supply per hog has not been so close as formerly because of government accumulations of corn and wheat in 1939, 1940 and 1941, and its release for feeding in 1942 and 1943.

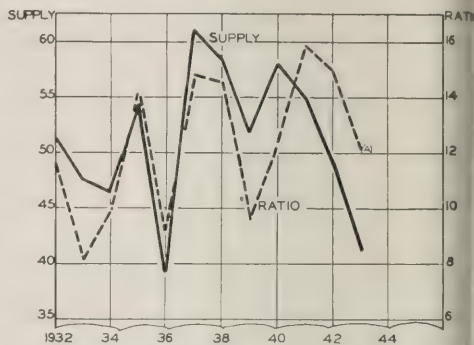


FIG. 1.—CORN SUPPLY PER HOG, U. S. (BUSHELS) AND HOG-CORN PRICE RATIO, CHICAGO, 1932-1944
(A) Average, 8 mo.

The Illinois situation. Thirty-five Illinois counties were included in the 125 counties of the United States in which effective April 25, the sales of corn from farms or elevators were restricted, with certain exceptions, to the Commodity Credit Corporation. A comparison of the corn production in relation to numbers of livestock indicates why most of these counties were included in the surplus corn area (Fig. 2). By counties, 1943 corn production per grain-consuming animal unit on farms January 1, 1944 ranged from 12 bushels in Union and Washington counties in the southern part of the state to 102 bushels in Grundy county in northern Illinois.

The counties most seriously affected by the restrictions on the movement of corn from the "freeze area" were the livestock producing counties immediately outside the restricted area, especially those to the south and southwest. Adjustments had not been made to bring livestock production into line with local feed supplies because the normal practice in these areas over a period of years was to produce livestock partly on corn grown elsewhere. Possibly some adjustments in livestock numbers might have been made sooner had not corn been trucked in from the surplus corn counties to the north. However, under favorable price relationships livestock feeders who are out of feed normally bid the prices necessary to obtain it. Livestock production is not necessarily confined to areas where feed is grown but is common in deficit feed areas.



¹1943 corn production. Livestock on farms January 1, 1944 converted to animal units using the following factors: milk cows, 1.00; other cattle, .51; hogs, .87; sheep, .04; horses and mules, 1.14; and chickens, .045.

TABLE 1.—COMPARISON BETWEEN AREAS OF 1943 CORN AND OATS PRODUCTION, CORN ON FARMS APRIL 1, 1944, AND LIVESTOCK NUMBERS ON FARMS JANUARY 1, 1944, AS PERCENTAGE OF STATE TOTALS

Items	Restricted Area	Non-restricted Area			
		Total	North	West	South
	(percent)	(percent)	(percent)	(percent)	(percent)
1943 oats production.....	49.3	50.7	29.7	6.5	14.5
1943 corn production.....	53.9	46.1	22.2	7.1	16.8
Corn stocks on farms April 1, 1944.....	53.9	46.1	23.6	8.2	14.3
Livestock on farms January 1, 1944:					
Horses and mules.....	33.8	66.2	17.7	7.4	41.1
Milk cows.....	33.5	66.5	30.3	5.9	30.3
Other cattle.....	40.8	59.2	25.6	8.6	25.0
Hogs.....	41.4	58.6	23.2	12.0	23.4
Sheep.....	41.9	58.1	19.6	8.6	29.9
Chickens.....	34.7	65.3	17.5	5.9	41.9
All livestock (animal units).....	39.3	60.7	23.3	10.1	27.3

In Illinois, the counties to the south of freeze area, and including Pike county, produced approximately 15 percent of the 1943 state oats crop and 17 percent of the corn crop, but on January 1, 1944 had 41 percent of the horses and mules of the state, 30 percent of the milk cows, 25 percent of other cattle, 23 percent of the hogs, 30 percent of the sheep and 42 percent of the chickens (Table 1). Converted to grain consuming animal units, 27 percent of all the livestock on farms January 1, 1944 was in the counties to the south of the restricted area.

On April 1, 1944 the supply of corn on farms was relatively lower per animal unit for the southern area than when based on 1943 corn production. Only 14 percent of the corn on farms in the state was in this area. On the other hand the "free" counties to the north of the restricted area had 24 percent of the farm-stored corn and 23 percent of the grain-consuming animal units. Although much of the corn in the restricted counties and also in the northeast "free" counties will be marketed after April 1, a comparison of the April 1 stocks of corn on farms per grain-consuming animal unit in the different areas emphasizes why the situation is more critical in the southern counties than elsewhere in the state. These estimates by sections of the state are as follows in number of bushels per grain-consuming animal unit: Restricted corn sale area, 22.8; non-restricted area, 12.6; northwest "free" counties, 14.2; northeast "free" counties, 23.1; west "free" counties, 13.4; west-southwest "free" counties, 7.6; east-southeast "free" counties, 12.9; southwest "free" counties, 6.2; and southeast "free" counties, 6.5.

Where did hog production increase? The question arises as to where the greatest increases occurred in hog numbers in Illinois. As previously stated, hog numbers on Illinois farms increased 48 percent from January 1, 1941 to January 1, 1944 while corn production increased 30

TABLE 2.—COMPARISON OF CHANGES IN HOG NUMBERS ON ILLINOIS FARMS FROM JANUARY 1, 1941 TO JANUARY 1, 1944, AND CHANGES IN CORN PRODUCTION FROM 1940 TO 1943, BY CROP-REPORTING DISTRICTS

Districts	Changes in hog numbers from 1941 to 1944	Changes in corn production from 1940 to 1943	Changes in corn production per hog
	(percent)	(percent)	(percent)
Northwest.....	+46	+33	- 8.3
Northeast.....	+60	+38	-14.3
West.....	+45	+31	- 9.4
West-southwest.....	+40	+18	-16.2
Central.....	+56	+37	-12.2
East.....	+63	+38	-15.7
East-southeast.....	+48	+14	-23.0
Southwest.....	+39	- 1	-29.0
Southeast.....	+45	+28	-11.2
State.....	+48	+30	-12.2

percent between 1940 and 1943 (Table 2). By crop-reporting districts the greatest percentage increase in hog numbers was in the cash grain area, that is, in the central and east crop-reporting districts (Fig. 3). Likewise, on a percentage basis, the greatest increases in corn production between 1940 and 1943 were in the east, northeast and central districts with the smallest percentage changes in the southwest, west-southwest and east-southeast districts. A more logical comparison, however, is the changes between these periods in corn production per hog by crop-reporting districts. On this basis the greatest percentage decrease occurred in the southwest and east-southeast districts and the least in the northwest and west districts.

Restrictions on the movement of corn out of surplus areas should cause the greatest reduction in hog numbers in the southwest and possibly in the east-southeast districts of Illinois.

Nationally, the June 1 pig crop survey indicated that adjustments in hog production were very heavy

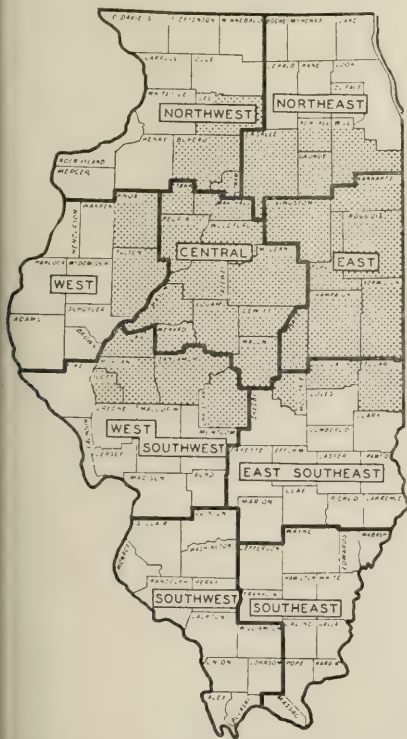


FIG. 3.—CROP REPORTING DISTRICTS AND RESTRICTED CORN AREA

in deficit feed areas and comparatively light in others. The reduction in the 1944 spring pig crop from 1943 was estimated to be 37 percent for the western region, 29 percent for the seven western cornbelt states, and 16 percent for the five eastern cornbelt states. The reduction for Illinois was 18 percent and only 9 percent for Indiana.

L. F. STICE and L. J. NORTON

SEASONAL PRICE VARIATION IN DAIRY PRODUCTION PAYMENTS

The dairy production payments announced for the period May 1944, thru March 1945, provide a seasonal difference in payment rates which should aid milk production in the fall and winter months. Illinois farmers will receive a payment of 35 cents per hundred pounds of milk delivered during the period May thru August, and 60 cents during the period September 1944 thru March 1945. Thus the payment during the fall and winter will exceed the summer payment by 25 cents per 100 pounds.

Illinois farmers have usually received higher prices for milk in the fall and winter than in the spring and summer. In 1938-1942 the average prices paid producers for milk by cooperative associations during the period September thru March exceeded those in the period May thru August by the amounts shown below (Table 1).

Prices paid by condenseries in the North Central States during 1938-1942 averaged 17 cents per hundred pounds higher in the September-March period than in the May-August period.

Considerable variation among different milksheds in the amount of seasonal price differential is indicated by the figures in Table 1. There has been a tendency for the seasonal variation to be greater in the larger

TABLE 1.—AMOUNTS BY WHICH SEPTEMBER-MARCH PRICES EXCEEDED MAY-AUGUST PRICES PAID BY COOPERATIVES TO ILLINOIS FARMERS, 1938-1942 AVERAGE

	\$ per cwt.		\$ per cwt.
Chicago.....	.25	Harrisburg.....	.13
Rockford.....	.24	Canton.....	.12
St. Louis.....	.21	Bloomington.....	.11
Moline.....	.20	Pontiac.....	.08
DeKalb.....	.20	Quincy.....	.08
Freeport.....	.18	Springfield.....	.06
Decatur.....	.18	Danville.....	.05
Peoria.....	.16	Galesburg.....	.05
Champaign.....	.15		

markets and in adjacent smaller markets. Seasonal differences in our largest market, Chicago, averaged the same during 1938-1942, as the differential provided in the dairy production payments for 1944-1945.

OPA regulations governing prices of milk for resale for human consumption provide that the maximum price shall be the highest price during January 1943, or the minimum price established under the Agricultural Marketing Agreement Act of 1937. Seasonal price differences are not provided for except in cases where marketing agreements include them.

Even tho dairy production payments now provide a seasonal differential of 25 cents per hundred pounds, all milk producers in Illinois will not receive exactly 25 cents more for milk delivered in the fall and winter than in the summer months. Four situations may be noted.

(1) Producers selling milk for fluid use in markets without federal marketing agreements will tend to receive exactly 25 cents higher returns per 100 pounds in the fall, the only exceptions being in those markets where maximum prices are not paid during certain months or where ceiling prices are changed.

(2) Producers selling milk to manufacturing plants will probably be receiving more than the 25-cent differential, for prices paid by these plants are normally higher in the fall and winter period than in the summer and are not directly limited by OPA regulations.

(3) Producers in the St. Louis market will receive materially more next fall than in May. The federal order in effect there provides price differentials *above* condensery prices during July thru November which are 30 cents per 100 pounds higher for Class I milk and 20 cents for Class II milk than during April thru June. During December thru March this price differential is reduced to 10 cents on Class I milk and 5 cents on Class II milk *above* the differential in the April-June period. Adding these seasonal differences to those provided by the dairy production payments, it is obvious that there is a greater price incentive for fall production in the St. Louis market than in any other market in the State.

(4) In the Chicago and Moline markets, prices for milk for fluid sale now remain at a fixed differential above condensery paying prices thruout the year, whereas formerly the differential varied by seasons. However, since condensery paying prices are now lower than they will probably be this fall, assuming such prices continue to vary seasonally, the returns of producers in the Chicago and Moline markets will increase by more than the 25-cent higher production payment differential.

If returns to dairymen are the major consideration in maintaining milk production this fall and winter, the seasonal differences provided by the dairy production payments will be a favorable factor in influencing production.

R. J. MUTTI

FORWARD PRICE FLOORS FOR AGRICULTURAL PRODUCTS

Price floors for agricultural products have been put into effect in the United States at various times since the beginning of the first World War. Generally these price floors have been made to apply for a considerable period after they have been announced, but they have been put into effect immediately or almost immediately after their announcement. In recent years, however, it has been proposed that "forward prices" or "forward price floors" be provided for. It is proposed that the prices be announced for one production period ahead of the time to which they are to apply. Thus, in the summer of 1944 a forward price for wheat might be announced which would apply to the crop harvested in 1945. The price would be announced early enough so that farmers would know what price to count on for the 1945 crop before they decided how much wheat to plant for harvest in 1945. To a limited extent, forward price floors of this sort have been used during the current war. The announcement in September 1943 that the hog-price floor during the period October 1, 1944 to March 31, 1945 would be \$12.50 is an example.

The primary objective of proposals for forward pricing is to provide a better means of guiding agricultural production. It is pointed out that fluctuating prices lead to uncertainty; that when the farmer plants a crop he is always uncertain what price he will receive for it when it is ready for market. On the other hand, the efforts of the government to control production thru acreage allotments and other "direct" measures have proved to be clumsy and largely ineffective. Consequently, why should not the government use prices, the long established means by which production has been influenced in the past, as the means of directing production? Why should not agricultural production be controlled thru government control of farm-product prices?

An important difficulty is that those prices which seem appropriate for directing agricultural production may not prove to be consistent with those which will serve best to direct the disposition of the products. Variations in production of individual farm products are largely due to weather conditions and other uncontrollable factors. In different years there are not only great differences in the total output of such crops as corn and cotton, there are also great differences in the geographic pattern of production. Efficient marketing and consumption of agricultural products can consequently best be attained by both a varying average level of prices and also a varying geographical price pattern in different years. What is the requisite price pattern for the most efficient disposition of the product, therefore, is not a thing which can be foretold one or more years in advance.

The difficulty is especially great in case of those farm products which are the raw materials for further agricultural production. Thus, the price of corn which in 1944 seems to be best suited to call forth the desired

acreage for 1945 may not prove, in view of the particular production pattern of that year, to be at all appropriate in 1945-46 to fit in with previously announced prices for hogs, beef cattle, eggs, and butterfat so as to result in a desirable balance of production of those commodities.

Under a system of general governmental controls these difficulties could perhaps best be met thru controlling wholesale and retail prices independently of the prices received by farmers. Licenses, taxes, and subsidies could be employed if such a differential price control were to be attempted.

In appraising the desirability of forward prices and forward price floors it should be borne in mind that price fluctuations, as well as prices, have a function. Even though stability of production is planned, fluctuations in production are bound to result because of differences in the weather and other factors which are beyond human control. Given these production fluctuations, price changes are desirable, though perhaps not precisely the price changes which result thru private enterprise and free competition in our existing market mechanism.

If prices do not change, the value of production of any commodity would depend only upon the amount of production. A big crop would have a high total value, a small crop a low value. There would be similar fluctuations in income from the crop. Hence, stability of prices would not mean stability of farm income. Where prices are established under free competition, on the other hand, a large crop tends to result in low prices and a small crop in high prices. Price changes tend to counterbalance the changes in production in their effect on farm income. They may more than counterbalance the changes in production and result in an even greater—and opposite—fluctuation in income than would the varying production with a fixed price.

Under competitive pricing, a large crop tends to result in a low price and this in turn to result in a reduction of acreage during the following year. If prices were stabilized so that the volume of production had no influence upon them, we might well find that high yields and a large crop would result in an increase of acreage in the following year. Consequently, price stabilization instead of tending to correct the effect of fluctuating yields might tend to aggravate its effect.

It has been alleged that fluctuations in the production of different crops and fluctuations in demand result in fluctuations of prices which are a major disturbing force in agriculture. There is no doubt that the fluctuations in demand and in production lead to price fluctuations, but are these truly an important disturbing force in agriculture? Disturbances might be greater if the prices were not permitted to fluctuate. Acreages of individual crops have been quite stable in the past. Indeed the stability of acreages of agricultural crops has been in marked contrast

to the variability of production in industries where prices have been held stable. However, maintaining prices of agricultural products during a period of severe unemployment would presumably result in an expansion of production unless that were prevented by governmentally imposed restrictions.

Obviously, the maintenance by the government of an effective system of forward prices for any commodity would involve a great degree of control over both its production and its distribution. Under such a system prices would be the means by which production would be increased or decreased.

Perhaps the greatest danger in the administration of forward prices arises from the fact that many people will be financially interested in what those prices are to be. This gives rise to political pressures which may result in the establishment of prices which are not in the best interest of the nation. It also provides incentive for corruption of administrators and other government employees. Administrative officials might be influenced to make desired decisions and they or minor employees might be induced to disclose "inside" information through bribes, threats of blackmail, or other means of influence.

As long as those who control government policies are subject to popular election, any price policies which they direct are bound to be influenced by political considerations; but to remove government officials from all political accountability would be even worse. To have price administrators free of political pressure would not insure that they would always act in the interest of "general public welfare." As Wm. Pitt said, "Unlimited power is apt to corrupt the minds of those who possess it." Without political accountability, we should probably soon find that price decisions would be made in the interest of those making the decisions rather than in the interest of the general public. In the long run, the only means of maintaining administrative policies consistent with public welfare is to make the administrators subject to the will of the people.

If we are to reduce the danger of unsound price decisions by Congress and other governmental agencies there are, fundamentally, two alternatives. The one is to leave price determination to the field of competitive forces and private enterprise. The other is to develop our political organization so that the selfish interests of minority groups are less effective in making policy decisions. Perhaps still a third possibility should be mentioned; that of developing a better understanding by the public of the problems involved in price determination.

In view of all these circumstances it would not seem to be in the interest of agriculture or of the general national welfare to supplant our system of determining prices of agricultural products through competitive private enterprise. It is to be recognized, nevertheless, that forward pricing has served a very useful purpose during the war. It has helped to

adapt our agricultural production to the unusual needs of wartime. The use of forward pricing to meet our wartime needs of encouraging agricultural production has resulted in legislation which directs the Secretary of Agriculture to continue price supports for a period of two years or more after the end of the war. Soon after the first announcement of forward price supports to encourage an expansion of production for certain commodities. Congress passed a law requiring that the support prices should not be less than 85 percent of parity. Later the percentage was raised to 90—with certain exceptions—and it was also required that the support prices be continued "so as to support, during the continuance of the present war and until the expiration of the two year period beginning with the 1st of January immediately following the date upon which the President by proclamation or the Congress by concurrent resolution declares that the hostilities in the present war have terminated, a price . . . not less than 90 per centum of the parity price. . . ."

These postwar price floors which Congress has directed the Secretary of Agriculture to maintain are not forward prices of the sort that have been advocated by some economists. They are not designed to direct agricultural production in accordance with postwar needs. Indeed, if they continue in force they may be expected seriously to misdirect production unless countervailing measures of production control are instituted.

The primary purpose of the postwar price floors which Congress has authorized is to prevent a decline in prices of the products concerned similar to the decline in prices which occurred about 18 months after the end of World War I. In this connection it is of utmost importance to recognize that the recurring agricultural distress of the past quarter-century, although due to relatively low prices for agricultural products, has not been due to any general failure of competition within agriculture or neither has it been due primarily to the failure of competition within the agricultural marketing system. It has been due rather to the fact that the operation of competition and free enterprise in non-agricultural industries has not been such as to result in a uniformly high level of production and employment in those industries.

It is highly desirable to prevent any drastic decline in the prices of agricultural products after the war, but this should not be done thru the maintenance of floor prices on farm products. It should rather be done thru preventing the cause of drastic price declines. That is thru the maintenance of a high level of industrial production and employment. This objective can be furthered by encouraging competition and by appropriate monetary, fiscal, and credit policies of the federal government. Reliance upon price floors to prevent a postwar decline of prices is not likely to avoid, but merely to delay, a price decline. It is, indeed, likely to increase the extent of the decline.

E. J. WORKING

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE
URBANA, ILLINOIS

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
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Oct.....	103	122	172	129	249	325	252	249	333	247
Nov.....	103	121	170	130	254	315	242	251	336	247
Dec.....	103	122	169	131	256	277	211	256	328	241
1944 Jan...	103	122	167	131	260	257	196	254	328	243
Feb.....	104	122	168	132	276	268	203	258	328	244
Mar.....	104	124	170	132	274	288	218	257	324	242
Apr.....	104	124	169	132	270	318	239
May.....	104 ¹¹	123	169	132	237 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			June 1943	Current months		
	1935-39	1942	1943		Apr.	May	June
Corn, bu.....	\$.66	\$.77	\$.98	\$1.00	\$1.08	\$ 1.08	\$1.08
Oats, bu.....	.31	.48	.66	.66	.80	.81	.80
Wheat, bu.....	.86	1.13	1.43	1.38	1.59	1.59	1.55
Barley, bu.....	.62	.74	1.00	.91	1.23	1.21	1.18
Soybeans, bu.....	.90	1.65	1.68	1.66	1.87	1.88	1.88
Hogs, cwt.....	8.52	13.37	14.07	13.80	13.30	13.00	12.90
Beef cattle, cwt.....	7.88	11.93	13.46	14.10	13.50	13.70	13.40
Lambs, cwt.....	8.36	12.28	13.57	14.20	14.30	14.30	14.00
Milk cows, head.....	58.00	102.00	129.25	136.00	133.00	129.00	129.00
Veal calves, cwt.....	8.66	13.63	14.40	14.50	14.20	14.20	14.10
Sheep, cwt.....	3.58	5.50	6.58	7.10	7.10	6.60	6.30
Butterfat, lb.....	.27	.39	.49	.48	.49	.49	.48
Milk, cwt.....	1.68	2.40	2.97	2.85	2.90	2.85	2.85 ¹¹
Eggs, doz.....	.19	.29	.36	.34	.26	.26	.27
Chickens, lb.....	.15	.19	.24	.25	.23	.24	.23
Wool, lb.....	.25	.40	.42	.45	.41	.41	.42
Apples, bu.....	1.08	1.53	2.49	2.75	3.60	3.60	3.00
Hay, ton.....	9.39	11.33	15.11	14.10	19.50	19.10	17.20
Potatoes, bu.....	.91	1.32	1.92	2.60	1.75	1.65	1.85

¹⁻¹²For sources of data in tables see previous issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

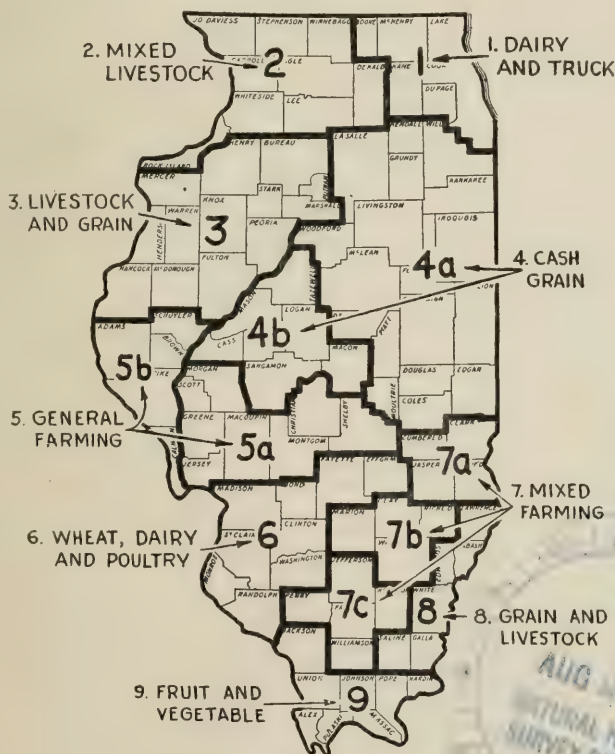
College of Agriculture • University of Illinois • Department of Agricultural Economics

G. L. Jordan, Editor

July-August, 1944

Number 110-111

Summary of Annual Farm Business Reports of 2,970 Illinois Farms For the Year 1943



THE NINE MAJOR TYPE-OF-FARMING
AREAS IN ILLINOIS

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

FOREWORD

This is the third annual summary of farm business reports from farms of farm account cooperators published in the *Illinois Farm Economics*. Similar reports for previous years beginning in 1924 are published in the annual reports of the Agricultural Experiment Station.

This issue of *Illinois Farm Economics* is devoted to an analysis of 2,970 farm records which were kept throughout Illinois during 1943. It also includes some comparisons of earnings for 1943 with those of previous years.

Illinois farmers have cooperated with the University of Illinois in keeping financial and production records of their farms for more than 25 years. These records have become more useful as more and more farmers have kept them and as they have been continued over a longer period of years. The greater value from these records is that of helping farmers who keep them to study their own business. As the records are kept over a period of years, they provide a basis for making changes which will improve the farm earnings and enable each individual to compare his farming operations with those of others who are farming under similar conditions.

The Illinois Farm Account Book, if properly used, contains all of the information needed to file an income tax report on the farm business on either the cash or the accrual basis. The record when summarized provides totals which may be transferred to the tax form with a minimum of time and effort.

Another value of the records is that of studying farm earnings from year to year on the same or similar farms as a means of showing the year-to-year changes in the financial condition of farmers. A comparison of the prices of things farmers buy and sell helps to accomplish this purpose, but farming is so complex, with the sources of income and the character of expenses varying widely on farms of different types, that farm records provide the most satisfactory basis for such comparisons.

A fourth value to be gained from the records is that of showing how the investments, incomes, expenses, earnings, yields, and sources of income vary in different parts of the state due to such factors as soil differences, size of farms, type of farming, climatic conditions, and available markets. The records also show the influence of variations within type-of-farming areas in quality of soil, size of farm, and type of organization on crop yields, capital investments, and earnings.

H. C. M. CASE

SUMMARY OF FARM BUSINESS REPORTS OF 2,970 FARMS IN ILLINOIS FOR 1943

J. B. CUNNINGHAM, M. L. MOSHER, AND E. N. SEARLS

Net cash income an acre. The average net cash income an acre for accounting farms reached another peak in 1943, exceeding the average net cash income an acre for any other year for which comparable records are available.¹ The earning figure was \$17.16 for 1943, compared with \$14.99 for 1942, \$1.47 for 1932, \$7.78 for 1929, and an average of \$5.30 for the years 1934, 1935, 1937, 1938, and 1939, when earnings were practically the same for each year (Fig. 1).

For the successive years 1929-1943, the average net cash income an acre for Illinois accounting farms was as follows:

1929.....	\$7.78	1934.....	\$5.40	1939.....	\$5.40
1930.....	6.22	1935.....	5.14	1940.....	6.82
1931.....	2.69	1936.....	7.40	1941.....	9.91
1932.....	1.47	1937.....	5.33	1942.....	14.99
1933.....	3.00	1938.....	5.25	1943.....	17.16

The net cash income an acre was computed by subtracting the value of unpaid labor from the cash balance for the year and by dividing that difference by the number of acres on the farms. In order to calculate the state averages, farming-type area averages were weighted by the acres of land in the farms (census) in each farming-type area.

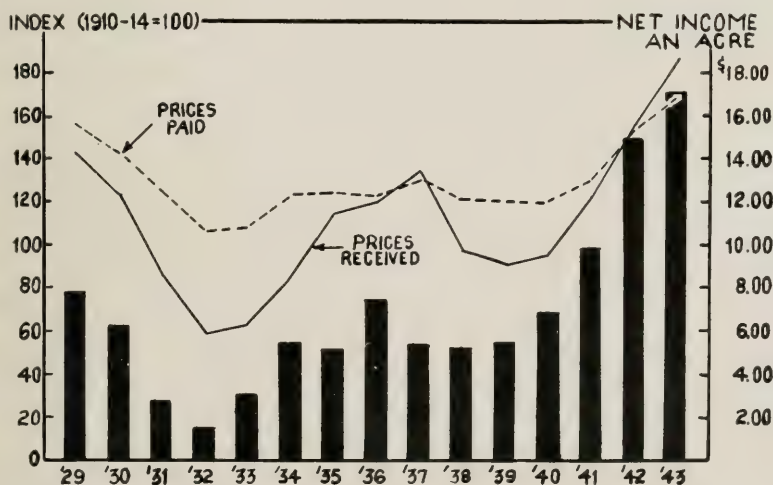


FIG. 1.—AVERAGE NET CASH INCOME AN ACRE (UNPAID LABOR DEDUCTED) ON ILLINOIS ACCOUNTING FARMS, PRICES PAID BY FARMERS IN THE UNITED STATES, AND PRICES RECEIVED BY ILLINOIS FARMERS, 1929-1943

¹Comparable records are available to 1926 and a limited number to 1916.

These returns do not include the inventory changes or the money value of food, fuel, and other items of living, all of which are secured from the farm. The net cash income an acre is one of the best measures for comparing incomes of groups of farms over a period of years, or for contrasting the level of income for different type-of-farming areas, because it is not influenced by changes in the inventory of land. During any period of years, earnings fluctuate more widely from year to year when inventory changes are included, since there are usually inventory losses when prices are declining and inventory increases when prices are rising.

Earnings for World War I and II compared. Were net farm earnings for accounting farms higher in 1943 than in 1918, comparable years in World War I and II? This question can be answered for several individual counties, but not for the state as a whole, because in 1918 farm accounts did not have state-wide coverage.

NET INCOME AN ACRE HIGHER IN 1943 THAN IN 1918 FOR ACCOUNTING
FARMS IN WOODFORD COUNTY

Item	1918	1943
Number of farms	19	74
Size of farm, acres	199	244
Gross receipts an acre	\$ 39.94	\$ 49.32
Gross expenses an acre	12.43	20.32
Net income an acre	27.51	29.02
Corn yield an acre, bushels	58	63

The average net earnings an acre on an inventory basis for accounting farms in Woodford County, for example, was \$27.51 in 1918 and \$29.02 in 1943, an increase of \$1.51 an acre for the latter year. The farms also increased in size from 199 acres in 1918 to 244 acres in 1943, and the net income per farm was materially larger in 1943 than in 1918. Corn yield an acre, an important factor affecting earnings in Woodford County, averaged 58 bushels in 1918 and 63 bushels in 1943.

Effect of large production and high prices on earnings. In 1943, the ratio of prices received by Illinois farmers to prices paid for supplies was 111 percent of the 1910-1914 ratio, and in 1937, it was 102 percent, or 9 points higher in 1943 than in 1937 (Fig. 1).

Why, then, should the net cash income an acre be so much larger in 1943 than in 1937? The answer is simply that, due to the war, the level of both domestic and foreign demand was high in 1943, and farmers had a large supply of salable products because of an accumulation of grain

and livestock resulting from six consecutive years of better than average crop yields and from favorable feeding ratios. Such a combination of circumstances is unusual. Therefore, the farmer should be cautious about making long-time commitments based on 1943 net earnings.

We have had years of low volume of sales, as 1937, when prices were high but there was little to sell, and we have had years like 1939 when a large volume of products was sold at relatively low prices. The effect of both of these combinations was a fairly low level of farm incomes. In 1936, a fair volume of products was marketed at good prices, but 1943 was a year when a large volume of products was sold for high prices.

In 1943, with a strong domestic demand resulting from the high incomes of city workers, and with a stronger foreign demand, the large volume of agricultural products was sold at increasing prices. As a result, the average cash income per farm on accounting farms advanced from \$10,865 a farm in 1942 to \$12,113 a farm in 1943. When inventory changes were included, the gross income per farm increased from \$12,427 a farm in 1942 to \$12,882 a farm in 1943, a 4-percent increase.

Accounting farms represent better than average condition. *The data contained in this report represent Illinois farm conditions which are better than average because the accounting farms are larger than average, the crop yields are above average, and the farms on the whole are operated with an efficiency which is greater than average. Differences between all farms and the accounting farms are indicated in the following table:*

Item	All farms	Accounting farms
Average size, acres	145	239
Corn yield an acre in 1943, bushels.....	50	54.4
Average gross cash income a farm.....	\$9 301 ^a	\$12 113

^aAll farms adjusted to the same size as the accounting farms.

Production changes. Accounting farms in each farming-type area, except Area 2, averaged more acres of grain crops in 1943 than in 1942, but only Areas 1, 5, and 9 produced more tons of grain (Table 1). In several sections of the state, an abnormally large amount of precipitation prevented crops from being planted as early as usual and a number of these same areas suffered from severe drouths later in the year.

Area 8 was the only one in which the volume of livestock production as measured in dollars was as large or larger in 1943 than in 1942.

TABLE 1.—AVERAGE ACRES IN ALL GRAIN INCLUDING SOYBEANS, TONS OF GRAIN PRODUCED, AND LIVESTOCK PRODUCTION BY FARMING-TYPE AREAS ON THE SAME ILLINOIS ACCOUNTING FARMS IN 1942 AND 1943

Farming-type area	Acres of grain crops		Tons of grain produced		Livestock and livestock products produced	
	1942	1943	1942	1943	1942	1943
Area 1, dairy and truck.....	94	96	135	136	\$9897	\$9261
Area 2, mixed livestock.....	105	105	152	150	8384	7791
Area 3, livestock and grain.....	120	123	166	163	8871	8109
Area 4, cash grain.....	170	178	200	192	5682	5305
Area 5, general farming.....	123	136	122	133	7554	7083
Area 6, wheat, dairy, and poultry.....	94	98	61	60	4323	4222
Area 7, mixed farming.....	90	100	60	59	3690	3678
Area 8, grain and livestock.....	106	113	90	83	3772	4197
Area 9, fruit and vegetable.....	75	81	48	54	3139	3114
State average.....	121	127	132	130	\$6224	\$5878

The production of poultry and eggs in 1943 was 9.1 percent more than in 1942 and there were 8.5 percent more hens on the farm. This was the only enterprise having a larger production in 1943 than in 1942.

In spite of the fact that there were 9.6 percent more pigs weaned in 1943, the value of hog production was 3.1 percent less. There was no change in the number of cows milked, but the value of milk sold and used in the household was 1.4 percent less. The decreases for cattle and sheep were 16.1 percent and 26.2 percent respectively.

As a result of the efforts in recent years to increase the production of crops and livestock, the accounting farms in 1942 acquired machinery and equipment so that at the beginning of 1943 it was 11.4 percent more than one year earlier. The accounting farms also used more labor in 1943 than in 1942, the increase amounting to 1.8 percent. In many cases, the increased amount of labor was due to the work of young boys and women and girls.

Value of farm products used in the household. In the farm business reports published since 1938, and in the printed tables at the back of this report, the farm value of meat, milk, eggs, and other farm products used in the household was included as a source of income. In comparing the 1938-1943 records with those for other years, the value of farm products used in the household has been omitted because the data are not available for years prior to 1938. The average values per farm and per acre of farm products used in the household for the various farming-type areas are indicated in Table 2.

From the records which are used to analyze the farm business, rental value of the farm residence as well as depreciation and maintenance expenses of the residence are omitted. Thus the accounting for farm buildings agrees with income tax rulings.

TABLE 2.—VALUE OF FARM PRODUCTS USED IN HOUSEHOLD,
1941, 1942, AND 1943

Area	Per farm			Per acre		
	1941	1942	1943	1941	1942	1943
Area 1.....	\$279	\$332	\$414	\$1.54	\$1.72	\$2.00
Area 2.....	276	330	376	1.33	1.60	1.92
Area 3.....	293	366	376	1.22	1.47	1.68
Area 4.....	284	344	371	1.07	1.34	1.44
Area 5.....	283	342	373	1.13	1.36	1.43
Area 6.....	282	349	394	1.32	1.61	1.81
Area 7.....	292	334	400	1.18	1.33	1.55
Area 8.....	267	317	377	1.21	1.46	1.58
Area 9.....	278	345	404	1.20	1.61	1.69
State average ^a	\$284	\$342	\$383	\$1.20	\$1.53	\$1.62

^aWeighted by the number of census farms in each area.

Cash income per farm. The average cash income and cash expenditures per farm were larger in 1943 than in any year in the history of farm accounting in Illinois.

The average cash balance of \$5,208 for 1943 was over five times as large as the average cash balance of \$968 for 1932, the low-income year of the depression (Table 3). The average cash balance for 1943 was \$813 a farm larger than in 1942, but income tax payments made in 1943 for 1942 and 1943 must be deducted from this sum in order to calculate the increase available for farm family living and savings.

Cash farm business expenditures. Illinois accounting farmers spent more money to run their farms in 1943 than in any year of record and probably established an all-time high because farms are larger now and farmers purchase a higher percentage of the materials used to operate

TABLE 3.—SELECTED ITEMS OF INCOME AND EXPENSE ON ILLINOIS ACCOUNTING
FARMS, 1936-1943^a

Item	1936	1937	1938	1939	1940	1941	1942	1943
Acres per farm.....	227	227	232	237	242	239	239	239
Cash income per farm.....	\$5 374	\$5 309	\$5 285	\$5 920	\$6 334	\$8 002	\$10 865	\$12 113
Cash expenditures per farm.....	3 034	3 424	3 421	4 001	4 094	4 983	6 470	6 905
Cash balance.....	\$2 340	\$1 885	\$1 864	\$1 919	\$2 240	\$3 019	\$ 4 395	\$ 5 208
Inventory increase.....	802	727	428	1 117	541	2 082	1 562	769
Cash balance plus inventory increase.....	\$3 142	\$2 612	\$2 292	\$3 036	\$2 781	\$5 101	\$ 5 957	\$ 5 977
Unpaid labor.....	740	733	698	696	691	769	1 011	1 367
Net farm income.....	\$2 402	\$1 879	\$1 594	\$2 340	\$2 090	\$4 332	\$ 4 946	\$ 4 610
Gross receipts per acre ^b	\$19.55	\$18.00	\$16.66	\$19.89	\$19.16	\$30.07	\$ 35.44	\$ 36.76
Total expense per acre ^c	9.06	9.86	9.95	10.26	10.47	11.63	14.82	17.35
Net receipts per acre ^b	\$10.49	\$ 8.14	\$ 6.71	\$ 9.63	\$ 8.69	\$18.44	\$ 20.62	\$ 19.41
Net receipts per acre (cash basis)...	\$ 7.40	\$ 5.33	\$ 5.25	\$ 5.40	\$ 6.82	\$ 9.91	\$ 14.99	\$ 17.16

^aIn this table and in succeeding tables where data are on a farm basis rather than on an acre basis, state averages were obtained by weighting area averages by the number of farms in each area.

^bGross receipts include inventory changes.

^cTotal expense includes unpaid labor charge.

TABLE 4.—CASH FARM BUSINESS EXPENDITURES ON ILLINOIS ACCOUNTING FARMS, 1937-1943

Nature of expenditures ^a	Average per farm							Percent 1943 is of 1942
	1937	1938	1939	1940	1941	1942	1943	
Land improvements and farm buildings.....	\$ 274	\$ 314	\$ 368	\$ 368	\$ 389	\$ 532	\$ 554	104
Machinery and equipment..	956	969	961	1 019	1 335	1 430	1 366	96
Feed and grain.....	656	471	634	647	947	1 461	1 866	128
Crop and sealing expense..	276	148	144	152	159	220	268	122
Hired labor.....	306	348	371	369	432	548	621	113
Taxes.....	234	256	272	287	294	302	311	103
Livestock and miscellaneous	722	915	1 251	1 252	1 427	1 977	1 919	97
Total cash expenses.....	\$3 424	\$3 421	\$4 001	\$4 094	\$4 983	\$6 470	\$6 905	107

^aTotal for each item of expenditure was determined by weighting the averages of each area by the number of census farms in the area.

their farms. Expenditures averaged 7 percent larger in 1943 than in 1942 and 102 percent larger in 1943 than in 1938 (Table 4). More money was spent in 1943 than in 1942 for all items except for livestock and machinery. The expenditures included both capital and operating items. For instance, outlays for new machinery and repairs as well as gas and oil expenses are included under machinery and equipment.

The average expenditure per farm of \$6,905 in 1943 may be contrasted with an average expenditure of \$1,494 per farm in 1933, the low point for expenditures in the depression period—an increase of 462 percent. This increase reflects changes in the price level, changes in the quantities purchased, and changes in the average size of farm.

Inventory increases. Inventory increases have occurred each year since the depression year of 1932, and these annual increases have ranged from \$428 per farm in 1938 to \$2,082 per farm in 1941 (Table 3). The average annual increase for the 11-year period ending in 1943 was \$889 a farm; for the 11-year period it has totaled \$9,779 a farm.

An inventory increase indicates that the combined value of livestock, grain, improvements, and machinery was larger at the end of the year than at the beginning. The ending inventory of each year is for the same farms as the beginning inventory, but the farms included in the averages for one year are not exactly the same as those for any other year because some old cooperators are dropped each year and new ones are added.¹

The series of inventory increases for a period of 11 years reflects the increase in prices for farm products, heavy investments in improvements and machinery, and an accumulation of grain and livestock. Enough money has been spent for machinery and improvements so that the value per farm on January 1, 1943, was 107 percent larger for machinery and

¹More than 1000 of the cooperators have kept records for ten or more years.

20 percent larger for improvements than it was in 1934. Earnings were larger during the last 11 years if inventory changes are included than if calculations are made on a cash basis. On the other hand, inventory losses averaged \$866 a year for the 3 years, 1930-1932. The cash basis more nearly reflects the ability of the farmer to pay his interest, to buy the things that the family needs, and to add something to the savings than does the method of accounting which includes inventory changes. Inventory changes must be included, however, in order to find the net position of the farm business for the year.

Variations in earnings from farm to farm. Earnings for the farms included in each area vary widely. Much of the farm-to-farm variation is due to the managerial ability of the operators and to the manner in which the farms are organized and operated. The records were grouped for this study into high-, medium-, and low-income farms on the basis of the rate earned on investment. The value of farm products used in the household was included as a farm receipt in this tabulation. The wide variation in rate earned on investment, net earnings per farm, and labor and management earnings indicates the opportunities which some farmers

TABLE 5.—VARIATIONS IN EARNINGS FROM FARM TO FARM BY FARMING-TYPE AREAS, 1943^a

Farming-type area	Level of earnings	Number of farms	Average rate earned on investment	Net earnings per farm	Labor and management earnings
	(rate earned on investment)		(percent)		(per farm)
1	Less than 12.00.....	74	7.6	\$3 549	\$2 252
	12.00 to 15.99.....	32	13.9	6 228	5 201
	16.00 or more.....	51	19.9	7 825	7 102
2	Less than 14.00.....	94	10.0	\$3 629	\$2 964
	14.00 to 17.99.....	61	16.0	5 966	5 239
	18.00 or more.....	80	21.5	7 894	7 230
3	Less than 15.00.....	142	10.5	\$3 776	\$3 092
	15.00 to 19.99.....	95	17.4	6 725	5 897
	20.00 or more.....	74	23.8	8 727	8 040
4	Less than 13.00.....	194	9.4	\$4 081	\$2 912
	13.00 to 16.99.....	147	15.0	7 072	5 758
	17.00 or more.....	197	20.6	9 563	8 255
5	Less than 14.00.....	126	10.0	\$3 146	\$2 465
	14.00 to 18.99.....	74	16.6	5 910	5 058
	19.00 or more.....	91	23.5	7 769	7 022
6	Less than 10.00.....	125	5.6	\$1 129	\$1 022
	10.00 to 14.99.....	79	12.6	2 552	2 466
	15.00 or more.....	93	20.0	3 818	3 780
7	Less than 10.00.....	56	5.2	\$ 877	\$ 836
	10.00 to 14.99.....	27	12.5	2 046	1 990
	15.00 or more.....	42	21.8	3 732	3 702
8	Less than 9.00.....	18	5.0	\$ 940	\$ 858
	9.00 to 14.99.....	22	12.1	2 447	2 205
	15.00 or more.....	37	22.4	4 836	4 574
9	Less than 8.00.....	8	2.1	\$ 337	\$ 338
	8.00 to 17.99.....	6	13.1	1 830	1 817
	18.00 or more.....	8	23.7	3 551	3 581

^aFor a more detailed analysis of variations in earnings, see the 1943 reports for each area.

have for improving the income from their farms because these variations are largely due to factors over which the operator has some control (Table 5).

Prices of important farm products. The average annual farm price of the more important agricultural products produced in Illinois was higher in 1943 than in 1942 (Table 6). At the end of 1943, the prices of all farm crops were higher than at the end of 1942 except the prices of horses, hogs, lambs, and veal calves.

The index of all Illinois farm prices in 1943 was 19 percent higher than in 1942 (Fig. 1). The percentage increases for the various groups were as follows: Meat animals, 8 percent; dairy products, 18 percent, chickens and eggs, 25 percent; grain, 28 percent; and fruit, 70 percent.

Constantly shifting ratios between the prices of livestock and livestock products and feeds is responsible for a large amount of the variation in earnings between different farming-type areas in Illinois. A long-time average of the relationships between these prices of livestock and/or livestock products and feeds used as a base to indicate a favorable price relationship for livestock producers indicates a favorable situation during most of 1943 for all livestock producers. Milk-feed price ratios, including dairy production payments, were below the long-time average for only the month of September. The hog-corn, beef steer-corn and egg-feed price ratios declined during the latter part of 1943. In recent months, the butterfat-feed price ratios, including dairy production payments, have improved the position of the dairyman producing butterfat.

TABLE 6.—PRICES OF IMPORTANT ILLINOIS FARM PRODUCTS, AS OF DECEMBER 15, IN 1942 AND 1943 AND AVERAGE OF 15TH OF MONTH PRICES FOR 1942 AND 1943

Farm product	December 15 farm prices		Average yearly farm prices		Percent change in 1943 from 1942	
	1942	1943	1942	1943	Dec. 15 prices	Yearly prices
Corn, bu.....	\$.80	\$1.06	\$.77	\$.98	+32.5	+27.3
Wheat, bu.....	1.24	1.54	1.13	1.43	+24.2	+26.5
Oats, bu.....	.49	.78	.48	.66	+59.2	+37.5
Barley, bu.....	.80	1.20	.74	1.00	+50.0	+35.1
Soybeans, bu.....	1.59	1.80	1.65	1.68	+13.2	+ 1.8
Apples, bu.....	1.75	3.00	1.53	2.49	+71.4	+62.7
Cloverseed, bu.....	12.90	18.00	10.54	17.36	+39.5	+64.7
Hay, ton.....	11.90	18.60	11.33	15.11	+56.3	+33.4
Horses, head.....	85.00	81.00	84.00	91.16	- 4.7	+ 8.5
Milk cows, head.....	120.00	126.00	102.00	129.25	+ 5.0	+26.7
Beef cattle, cwt.....	12.50	12.80	11.93	13.46	+ 2.4	+12.8
Hogs, cwt.....	13.40	13.10	13.37	14.07	- 2.2	+ 5.2
Lambs, cwt.....	13.70	13.40	12.28	13.57	- 2.2	+10.5
Chickens, lb.....	.20	.23	.19	.24	+15.0	+26.3
Milk, cwt.....	2.80	3.45*	2.40	3.05*	+23.2*	+27.1*
Butterfat, lb.....	.47	.54*	.39	.50*	+14.9*	+28.2*
Eggs, doz.....	.34	.41	.29	.36	+20.6	+24.1
Wool, lb.....	.40	.44	.40	.42	+10.0	+ 5.0

*Includes dairy feed payments.

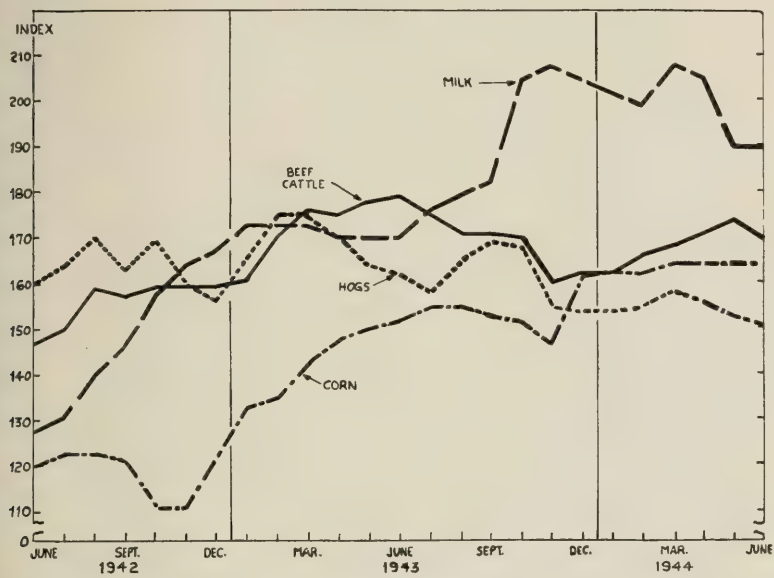


FIG. 2.—INDEXES OF THE AVERAGE MONTHLY ILLINOIS FARM PRICES OF CORN, HOGS, BEEF CATTLE, AND MILK, JUNE, 1942-JUNE, 1944, (1935-1939 = 100). MILK INDEX INCLUDES DAIRY FEED PAYMENTS FOR OCTOBER, 1943 THROUGH JUNE, 1944

The changes that have taken place in the average monthly Illinois prices of hogs, beef cattle, and milk as related to corn prices appear in Fig. 2.

Variation in supplies. Prices of farm products at inventory time influence farm earnings because all feed, grain, livestock, and other farm property are valued at the beginning and at the end of the year. Consequently, the influence is greatest when large stocks are on hand at inventory time and when prices at that time vary widely from those during the year when purchases and sales would be made in the course of operation.

At the end of each year since the drouth of 1936 up through 1942, the inventories of the four major grain crops (corn, oats, wheat, and soybeans) on Illinois farms were more at the end of the year than at the beginning. With less favorable crop production conditions and larger demands for grain from increased numbers of livestock and for industrial uses in the production of war goods, this upward trend as reflected by the accounting farms was broken in 1943. The average amount of corn per farm was 0.3 of one percent, more at the end of 1943 than at the beginning (Table 7). Even though the quantity of corn represented about five-sevenths of the quantities of all four grains there was a combined

TABLE 7.—QUANTITIES OF GRAIN AND NUMBERS OF LIVESTOCK ON ACCOUNTING FARMS, BEGINNING AND END OF 1943

Farm product	Unit	Beginning of year	End of year	Percent change
		(total for 2 053 farms)		
Grain				
Corn.....	Thousand bu.	5 620	5 636	+ .3
Oats.....	Thousand bu.	1 358	1 146	-15.5
Wheat.....	Thousand bu.	140	110	-21.4
Soybeans.....	Thousand bu.	409	242	-40.8
Total.....	Thousand bu.	7 525	7 134	- 5.2
		(total for 3 150 farms)		
Livestock				
Milk cows.....	Number	25 427	25 522	+ .4
Beef cows.....	Number	11 716	12 144	+ 3.7
Feeder cattle.....	Number	58 721	49 134	-16.3
Feeder lambs.....	Number	16 587	17 525	+ 5.7
Brood sows.....	Number	47 438	40 455	-14.7
Spring pigs.....	Number	47 018	78 783	+67.6
Summer pigs.....	Number	35 672	50 443	+41.4
Fall pigs.....	Number	126 785	133 398	+ 5.2
Total.....	Number	369 364	407 404	+10.3

decrease of 5.2 percent in the quantities of all grains on hand at the end of the year.

As indicated by the above table accounting farms showed a continued increase in livestock numbers by 10.3 percent because large increases in spring and summer pigs were large enough to offset reductions taking place in the numbers of cattle on feed and brood sows for spring farrowings.

In 1943, 17.6 litters were farrowed per farm on accounting farms, compared with 15.3 litters in 1942, 13.7 litters in 1941 and 12.7 litters in 1940. Most of the increase in 1943 over 1942 was in spring litters.

Crop yields in Illinois, 1943. The year 1943 was the seventh consecutive year of high crop yields in Illinois. The weighted average yield of corn, oats, wheat, and soybeans for 1943 was 118 percent of the 10-year average, 1931-1940.

In 1943, yields of the four principal grain crops as expressed in percentages of 1931-1940 averages, follow: corn, 132; oats, 104; soybeans, 107; and wheat, 89. Corn yields were higher than the 10-year (1931-1940) average for each of the counties with the exception of Clay, Richland, Lawrence, Crawford, Effingham, Marion, Alexander, Fayette, Edwards, Union, Jefferson, Wabash, and White counties.

Yields of wheat, oats, and soybeans were lower than the previous 10-year average yields in 63, 53, and 12 counties, respectively.

Counties in the northeastern part of the state having yields over 35 percent above the 10-year average were Lake, McHenry, Boone, Winnebago, DuPage, and Kendall counties. Brown county in the west central and Jackson county in the southern part of the state had yields 40 and 39 percent respectively above their 10-year average.

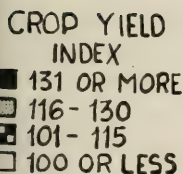


FIG. 3.—CROP YIELDS FOR 1943 COMPARED WITH 10-YEAR (1931-1940) AVERAGE YIELDS FOR THE SAME COUNTY. THE INDEXES ARE BASED ON COUNTY YIELDS OF CORN, OATS, WHEAT, AND SOYBEANS (DATA FROM ILLINOIS COOPERATIVE CROP REPORTING SERVICE)

TABLE 8.—NET CASH INCOME AN ACRE FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929 AND 1930-1934 AND FOR THE YEARS 1939, 1940, 1941, 1942, AND 1943

Farming-type areas	1925-1929	1930-1934	1939	1940	1941	1942	1943
Area 1, Chicago Dairy ^a	\$9.59	\$5.25	\$4.04	\$8.66	\$ 9.05	\$15.71	\$15.40
Area 2, Northwestern Mixed Livestock ^b ..	7.94	4.92	5.76	8.71	12.01	16.83	22.84
Area 3, Western Livestock and Grain ^b	9.05	4.86	6.83	8.01	12.49	19.63	19.42
Area 4, East-Central Cash Grain ^b	8.91	4.46	7.08	9.02	13.28	20.25	22.63
Area 5, West-Central General Farming...	6.35	3.23	4.55	4.68	8.30	13.21	16.15
Area 6, St. Louis Dairy and Wheat.....	3.26	2.03	3.69	4.34	4.82	5.69	7.76
Area 7, South-Central Mixed Farming...	2.21	.91	1.39	1.81	2.99	3.40	4.47
Area 8, Wabash Valley Grain and Livestock.....	4.57	1.73	4.19	3.11	3.82	7.51	10.07
State Average (weighted by acres in each area).....	\$7.13	\$3.74	\$5.40	\$6.82	\$ 9.91	\$14.99	\$17.16

^aIn calculating these averages, records of the Farm Bureau Farm Management Service were included for the years 1942 and 1943.

^bIn calculating averages for these areas, records of the Farm Bureau Farm Management Service were included for the years 1939, 1940, 1941, and 1942.

Variations in net cash income an acre. The average net cash income per acre for Illinois accounting farms in 1943 varied from \$4.47 in Area 7 to \$22.84 in Area 2 (Table 8).

Net cash incomes were higher in 1943 than in 1942 in all areas except Areas 1 and 3, where they were slightly lower. In Area 2 the increase from 1942 to 1943 was \$6.01 or 36 percent, as contrasted to a decrease of 31 cents or 2 percent in Area 1.

The net cash income per acre reflects, in part, the crop yields of the preceding years, because a large percentage of the grain and livestock sales are from crops harvested during prior years. It also reflects current prices for products produced in the area: Thus in Area 1 the beneficial effect of high crop yields in 1941 and 1942, as well as in 1943, was offset by the prices of dairy products which averaged low in relation to the prices of most other farm products.

Inventory changes by farming-type areas. The average inventory increased \$769 a farm in 1943. This amount included inventory increases in all areas with the largest increase in Area 1 and the smallest in Area 6 (Table 9). In general, inventory increases were greatest in areas with

TABLE 9.—INVENTORY CHANGES BY FARMING-TYPE AREAS, 1943

Farming-type areas	Livestock	Feed and grain	Machinery	Buildings	Land improvements	Total
Area 1.....	\$553	\$1 382	\$-121	\$41	\$22	\$1 877
Area 2.....	-201	916	28	71	23	837
Area 3.....	136	925	45	-12	33	1 127
Area 4.....	-119	746	-62	30	93	688
Area 5.....	57	709	-33	-37	34	730
Area 6.....	37	282	-93	15	30	271
Area 7.....	82	384	10	-11	67	532
Area 8.....	212	279	-54	-17	55	475
Weighted average.....	\$ 34	\$701	\$-30	\$10	\$54	\$ 769

TABLE 10.—BUSHEL OF CORN AND OATS IN INVENTORIES ON SAME ACCOUNTING FARMS BY FARMING-TYPE AREAS, JANUARY 1, 1943 AND 1944

Farming-type areas	Corn		Oats	
	Jan. 1, 1943	Jan. 1, 1944	Jan. 1, 1943	Jan. 1, 1944
Area 1.....	2 622	3 000	1 191	1 034
Area 2.....	2 998	3 076	991	863
Area 3.....	3 353	3 483	617	646
Area 4.....	4 027	3 901	841	634
Area 5.....	2 478	2 537	437	396
Area 6.....	947	829	383	278
Area 7.....	1 043	1 094	227	180
Area 8.....	1 834	1 562	255	188
Weighted average.....	2 680	2 687	629	528

the highest crop yield indexes (Fig. 3) although all areas showed inventory increases for feed and grain because prices were higher at the end of the year than at the beginning (Table 10).

The decrease in machinery inventory of \$30 a farm was the first decrease in this item since 1935 when earnings reached a level which encouraged the purchase of new equipment. In 1943 only a limited amount of new machinery was available, but many farmers maintained their inventories by purchasing used machinery and livestock equipment, as well as by overhauling their old machinery.

The \$54 increase in land improvements indicates relatively large purchases of limestone and rock phosphate. Average building values in 1943 increased \$10, the same as in 1942. Governmental restrictions prevented new construction.

Variations in net income an acre with inventory changes included. When inventory changes were included, the average net income an acre on accounting farms was 6 percent lower in 1943 than in 1942 (Table

TABLE 11.—NET INCOME AN ACRE (INVENTORY BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929 AND 1930-1934 AND FOR THE YEARS 1939, 1940, 1941, 1942, AND 1943

Farming-type areas	1925-1929	1930-1934	1939	1940	1941	1942	1943
Area 1, Chicago Dairy ^a	\$11.04	\$2.64	\$ 9.23	\$13.50	\$22.35	\$24.47	\$24.46
Area 2, Northwestern Mixed Livestock ^b	15.11	2.70	11.45	12.34	23.02	28.26	27.12
Area 3, Western Livestock and Grain ^b	10.24	2.84	13.01	10.66	23.70	29.92	24.45
Area 4, East-Central Cash Grain ^b	10.30	2.76	13.42	9.99	23.85	26.89	25.29
Area 5, West-Central General Farming.....	7.69	1.99	8.79	8.08	17.26	18.08	18.96
Area 6, St. Louis Dairy and Wheat...	5.41	.92	6.65	6.90	8.95	8.60	9.01
Area 7, South-Central Mixed Farming	3.34	.55	3.18	3.36	6.49	6.91	6.52
Area 8, Wabash Valley Grain and Livestock.....	5.34	1.20	5.04	5.22	9.44	12.59	12.07
State Average (weighted by acres in each area).....	\$ 8.59	\$2.20	\$10.33	\$ 9.09	\$18.99	\$21.79	\$20.44

^aArea 1 includes records from the Farm Bureau Farm Management Service for 1942 and 1943.

^bFor these areas, records from the Farm Bureau Farm Management Service are included for the years 1939, 1940, 1941, and 1942.

TABLE 12.—PERCENT OF ILLINOIS ACCOUNTING FARMERS RECEIVING AGRICULTURAL CONSERVATION PAYMENTS IN 1943 AND THE PAYMENTS PER FARM AND PER ACRE BY FARMING-TYPE AREAS

Farming-type area	Number of farms	Acres per farm	Percent of farms receiving payments	Payments per farm, all farms	Payments per farm, cooperating farms	Payments per acre, cooperating farms	Taxes per acre, all farms
Area 1.....	157	207	81.5	268	329	1.59	1.61
Area 2.....	235	196	86.4	416	482	2.46	1.42
Area 3.....	311	224	92.0	350	381	1.70	1.46
Area 4.....	538	258	93.7	490	523	2.03	1.61
Area 5.....	291	260	91.1	457	502	1.93	1.35
Area 6.....	297	217	95.3	423	444	2.05	.89
Area 7.....	125	259	96.8	343	354	1.37	.70
Area 8.....	77	238	97.4	410	421	1.77	.94
Area 9.....	22	238	100.0	431	431	1.81	.78

11) because inventories increased less in 1943 than in 1942. In 1943 inventory increases a farm averaged \$767, but in 1942 they averaged \$1,562. The decrease in 1943 of 6 percent with inventories included is in contrast with an increase of 14 percent on the cash basis.

This is the first time since 1932 that the net income an acre on the inventory basis has been lower than on the cash basis and is the fourth time since 1925. The other low years for the inventory basis were in 1930, 1931, and 1932. In 1943, the range in net income per acre was from \$6.52 in Area 7 to \$27.12 in Area 2.

Income from agricultural conservation payments. Cash incomes of accounting farmers in 1943 included Government payments which were received during the year for participation in the agricultural conservation program. In many cases, especially in Areas 6, 7, 8, and 9, delayed payments for 1942, as well as payments for 1943, were included in Table 12.

Of the 22 farms in Area 9, 100 percent received payments. In the other areas the percent of farms receiving payments ranged from 81.5 in Area 1 to 97.4 in Area 8. In all areas except Area 1, the payments an acre far exceeded the taxes an acre.

War unit variations. A war unit refers to the number of crop acres or the number of livestock that requires approximately the same amount of labor necessary to keep one dairy cow.

The average number of war units accomplished per worker varied from 14 in Area 9 to 22 in Areas 3 and 4; months of labor varied from 20.1 in Area 7 to 25.9 in Area 1; and total war units ranged from 27.3 in Area 9 to 47.1 in Area 1 (Table 13).

Table 15 shows that war units per worker increased from 17.3 to 23.7 or 37 percent as the size of farm increased from less than 121 acres to 361 acres or more. Source of income, on the other hand, apparently had little effect on the war units accomplished per worker, the variation

TABLE 13.—WAR UNITS BY FARMING-TYPE AREAS, 1943

Farming-type area	War units			Months of labor	Units per worker
	On crops	On livestock	Total		
Area 1.....	18.2	28.9	47.1	25.9	21.8
Area 2.....	17.5	20.3	37.8	21.1	21.5
Area 3.....	19.6	19.6	39.2	21.4	22.0
Area 4.....	26.1	15.4	41.5	22.7	22.0
Area 5.....	20.6	19.0	39.6	23.6	20.1
Area 6.....	14.2	16.9	31.1	23.5	15.9
Area 7.....	16.7	12.7	29.4	20.1	17.5
Area 8.....	16.7	12.6	29.3	20.9	17.1
Area 9.....	13.5	13.8	27.3	23.4	14.0

being from 19.4 on the dairy farms to 22.2 on the grain farms (Table 14). This analysis of war units indicates standards for labor accomplishments on individual farms, the man power needs for farms and the best application of man power available.

Standards for Measuring Operating Efficiency

Farm account studies have repeatedly shown the principal factors affecting relative earnings to be land use, crop yields, amount of livestock, livestock efficiency, labor cost, machinery cost, and prices received for things sold. They have also shown the following facts: (1) That the quality of land affects the cropping system and the crop yields; (2) that the kind of livestock influences the kinds and amounts of feed fed as well as the returns for feed fed; (3) that the size and intensity of the farm business affects practically all the cost items; and (4) that price relationships and quantities of products produced affect the relative profitability of various types of farming for any particular year.

With the foregoing facts in mind, 1,375 farms in Areas 2, 3, 4, and 5 were sorted into groups as indicated in Figures 4, 5, and 6 and in Tables 14 and 15. Similar figures and tables for each of the nine major type-of-farming areas of the state can be found in the area reports for 1943. These reports are available upon request and may be used by any farmer who keeps records to analyze his efficiency.

The terms used in the various figures and tables are the same as those used in the Illinois Farm Account Book. For example, "improved land," a term that is used in Figure 4, means tillable land and land occupied by farmstead, roads, and orchards.

Crop yields. Figure 4 shows the effect of quality of land (expressed as value an acre) on yields of corn, oats, wheat, and soybeans. Land valued at \$40 an acre produced about 47 bushels of corn, 25 bushels of oats, 8 bushels of wheat, and 12 bushels of soybeans; land valued at \$150 an acre produced about 64 bushels of corn, 36 bushels of oats, 17

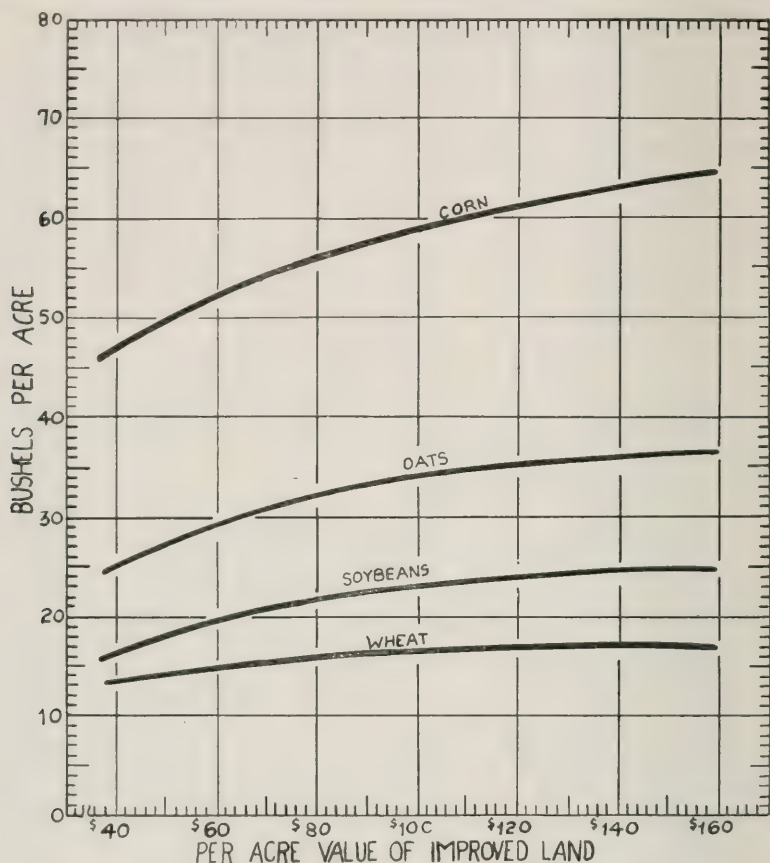


FIG. 4.—AVERAGE YIELDS OF CORN, OATS, WHEAT, AND SOYBEANS WITH VARYING VALUES OF IMPROVED LAND, FARMING-TYPE AREAS 3, 4, AND 5, 1943

bushels of wheat, and 25 bushels of soybeans. The differences in acre-yields between \$40 land and \$150 land are as follows: corn, 17 bushels; oats, 11 bushels; wheat, 9 bushels; and soybeans, 13 bushels.

Such variations are significant, but the fact should be kept in mind that they apply only to the conditions which prevailed in 1943. Wheat yields may be higher or lower in relation to corn yields in years with growing conditions different from those in 1943. Data of this type are valuable because they enable farmers to compare the yields on their own farms with those on farms having a similar quality of land.

Source of income. The grouping of accounting farms according to source of income for 1943 gives each farmer an opportunity to compare his farm with the average of other farms having similar sources of income. It also gives him an opportunity to study investments, land use,

TABLE 14.—SOURCE OF INCOME RELATED TO FARM EARNINGS AND OTHER FACTORS FOR 1,375 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2, 3, 4, AND 5, 1943

Item	Source of income					
	Grain 40% +	Dairy sales 40% +	Hogs 40% +	Cattle 40% +	General farms	
					L.S. 60% -	L.S. 60% +
Number of farms.....	412	56	536	58	107	206
Percent of income from prod. l.s.....	35.6	85.6	92.2	93.4	54.1	82.5
Percent of income from crops.....	56.5	6.6	.....	.....	35.5	8.7
Investments						
Total per farm.....	\$44 034	\$30 606	\$37 782	\$63 683	\$36 634	\$34 604
Total per acre.....	165	158	165	199	161	162
Land per acre.....	105	84	90	98	97	89
Land improvements per acre.....	2.82	2.33	3.56	3.64	2.82	3.62
Buildings per acre.....	14.36	23.65	17.43	18.17	14.19	17.16
Machinery per acre ^a	11.36	13.31	11.65	11.44	11.56	12.02
Earnings						
Per farm						
Gross earnings.....	\$11 715	\$ 8 574	\$10 322	\$16 100	\$ 9 993	\$ 8 927
Gross expenses ^b	4 364	4 789	4 540	7 851	3 991	4 155
Net earnings.....	\$ 7 351	\$ 3 785	\$ 5 782	\$ 8 249	\$ 6 002	\$ 4 772
Per acre						
Gross earnings.....	\$ 43.84	\$ 43.67	\$ 45.15	\$ 50.57	\$ 43.80	\$ 41.72
Gross expenses ^b	16.31	24.22	19.89	24.70	17.44	19.42
Net earnings.....	\$ 27.53	\$ 19.45	\$ 25.26	\$ 25.87	\$ 26.36	\$ 22.30
Rate earned on investment (percent).....	16.7	12.3	15.4	13.0	16.3	13.9
Labor and management earnings..	\$ 6 181	\$ 3 352	\$ 4 927	\$ 6 128	\$ 5 214	\$ 4 091
Size and Intensity						
Acres per farm.....	268.9	197.4	229.9	326	232	215
Percent of land area tillable.....	88.4	81.6	81.1	86.6	87.6	81.2
Percent tillable land in grain.....	78.0	61.9	69.7	66.5	72.8	68.2
Percent in hay and pasture.....	19.4	34.3	27.9	30.8	24.7	29.0
Feed fed per acre to prod. l.s.....	\$12.02	\$ 24.44	\$ 31.50	\$ 40.98	\$ 18.03	\$ 24.87
Months of labor per 100 crop A.....	10.5	20.4	15.0	13.2	12.4	15.3
Total months of labor.....	21.8	25.3	22.6	28.9	21.2	21.7
War units per worker.....	22.2	19.4	21.5	21.2	21.3	20.9
Total war units.....	40.4	40.8	40.5	51.3	37.3	37.8
Crop Yields per Acre						
Corn, bu.....	58.6	57.5	61.4	64.1	59.3	57.4
Livestock Returns						
Per \$100 feed fed.....	\$140	\$158	\$137	\$118	\$140	\$144
Hog returns per litter.....	167	160	193	181	172	175
Dairy returns per cow.....	116	235	127	122	134	151
Expense Factors						
Labor cost per crop acre ^b	\$ 9.46	\$ 18.25	\$ 13.78	\$ 12.37	\$ 11.44	\$ 13.99
Horse and machinery cost per crop acre.....	7.16	10.98	9.16	9.32	7.42	9.32
Land improvements cost per acre..	.65	.74	.77	.86	.67	.74
Buildings cost per acre.....	1.07	1.63	1.39	1.55	1.06	1.34
Land tax per acre.....	1.30	1.17	1.20	1.23	1.27	1.20

^aMachinery includes farm share of automobile. ^bExpenses include operator's and family's labor.

crop yields, labor requirements, horse and machinery requirements, and other factors that are associated with various types of farming.

Each farmer, however, should be careful in interpreting the data in Table 14. For example, the fact that grain farms showed the largest rate earned on the investment for 1943 and that dairy farms showed the smallest does not mean such a relationship will prevail over a long period of years. The relative profitableness of these enterprises in 1943 was influenced by conditions affecting price and production.

When comparing the returns on the various groups of farms per \$100 worth of feed fed, one should consider the fact that the necessary returns

TABLE 15.—SIZE OF FARM RELATED TO FARM EARNINGS AND OTHER FACTORS FOR 1,375 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2, 3, 4, AND 5, 1943

Item	Total acres in farm				
	Less than 121	121 to 200	201 to 280	281 to 360	361 or more
Number of farms.....	144	503	386	170	172
Acres per farm.....	106	167	241	321	478
Acres in crops.....	76	121	173	232	321
Investments					
Total per farm.....	\$19 103	\$29 293	\$39 816	\$52 079	\$72 885
Total per acre.....	181	175	165	162	153
Land per acre.....	98	99	97	98	90
Land improvements per acre.....	4.30	3.54	3.04	2.67	3.12
Buildings per acre.....	20.48	18.46	16.72	14.44	14.16
Machinery per acre ^a	15.90	13.14	11.57	10.79	9.86
Earnings					
Per farm					
Gross earnings.....	\$ 5 408	\$ 7 908	\$10 612	\$13 501	\$18 677
Gross expenses ^b	2 839	3 564	4 293	5 259	7 026
Net earnings.....	\$ 2 569	\$ 4 344	\$ 6 319	\$ 8 242	\$11 651
Per acre					
Gross earnings.....	\$ 51.30	\$ 47.34	\$ 44.04	\$ 42.00	\$ 39.29
Gross expenses ^b	26.91	21.33	17.81	16.36	14.79
Net earnings.....	24.39	26.01	26.23	25.64	24.50
Rate earned on investment (percent).....	13.6	14.9	15.8	15.9	16.1
Labor and management earnings.....	\$ 2 627	\$ 3 915	\$ 5 381	\$ 6 666	\$ 9 037
Size and Intensity					
Percent of land area tillable.....	86.6	87.2	85.3	84.6	80.0
Percent tillable land in grain.....	70.8	70.7	72.8	74.4	73.1
Percent in hay and pasture.....	27.9	27.0	24.9	22.8	24.0
Feed fed per acre to productive livestock.....	\$ 29.92	\$ 26.13	\$ 22.10	\$ 20.33	\$ 19.91
Percent of income from productive livestock.....	80.6	75.2	67.9	63.1	65.9
Percent of income from crops.....	9.7	16.0	24.0	28.9	26.5
Months of labor per 100 crop acres.....	20.9	15.9	12.9	11.4	10.7
Total months of labor.....	15.9	19.1	22.1	26.1	33.6
War units per worker.....	17.3	19.9	21.8	23.3	23.7
Total war units.....	22.9	31.8	40.1	50.8	66.4
Crop Yields per Acre					
Corn, bu.....	61.8	61.1	59.1	59.0	59.0
Livestock Returns					
Per \$100 feed fed.....	\$148	\$144	\$141	\$135	\$132
Hog returns per litter.....	178	181	182	178	197
Dairy returns per cow.....	139	150	143	146	137
Expense Factors					
Labor cost per crop acre.....	\$ 19.11	\$ 14.38	\$ 11.75	\$ 10.52	\$ 9.82
Horse and machinery cost per crop acre.....	10.86	9.43	8.24	7.60	7.39
Land improvements cost per acre.....	.88	.80	.65	.65	.73
Buildings cost per acre.....	1.72	1.48	1.22	1.07	1.15
Land tax per acre.....	1.35	1.33	1.28	1.25	1.13

^aMachinery includes farm share of automobile. ^bExpenses include operator's and family's labor.

per \$100 worth of feed fed to pay for feed (including pasture), labor, equipment, buildings, and other costs vary widely. According to 5-year averages of complete cost studies (1939-1943), the necessary returns were: poultry, \$186; dairy cattle, \$185; hogs, \$135; and feeder cattle, \$120.

Furthermore, when comparing crop yields for the various types of farming, one should note the following items which indicate that the grain farms were located on the better land: (1) High value of land per acre; (2) larger percent of land area tillable; (3) large percent of land in grain; and (4) high land tax per acre.

Differences in expenses are highly significant for the 6 groups of

farms. Labor input per 100 crop acres was highest on the dairy farms, where 20.4 months of labor were used, and lowest on the grain farms, where 10.5 months of labor were used. The dairy farmers evidently utilized a large amount of labor to increase the size of their businesses without increasing the size of their farms.

The labor cost per crop acre ranged from \$18.25 on the dairy farms to \$9.46 on the grain farms; the horse and machinery cost per crop acre was highest on the dairy farms, where it averaged \$10.98, and lowest on the grain farms, where it averaged \$7.16; the building cost per acre averaged \$1.63 on the dairy farms and \$1.07 on the grain farms.

Labor, horse and machinery, and improvement costs were higher for all sources of income groups in 1943 than in 1942; labor cost per crop acre, for example, was 36 percent higher on the grain farms in 1943 than in 1942.

Size of farm. When the farm records in Farming-Type Areas 2, 3, 4, and 5 are sorted according to the total acres in the farm, they indicate that the operators on the largest farms took in more money during the year than did those on the smallest ones; and after deductions were made for farm business expenditures and interest on the investment, the 172 largest farms had labor and management earnings which averaged \$9,037, contrasted with \$2,627 for the 144 smallest farms. The latter had higher investments an acre for improvements, machinery, and total investment, indicating a higher capital input. The rate earned on investment increased moderately from the farms averaging less than 121 acres to those averaging 241 acres and very slightly to those averaging 361 acres or more.

In 1943, the smallest farms were operated more intensively than were the largest ones. This variation was indicated by the higher gross earnings an acre, by the larger labor and capital input an acre, and by the larger value of feed fed an acre to productive livestock.

The method used to increase the volume of business depended upon the individual farm. Some farm operators apparently increased the volume of their businesses by improving the quality and increasing the amount of livestock; others, by growing more intensive crops, by increasing crop yields, or by developing special markets; still others, by increasing the acreage operated or by applying combinations of the above methods.

Labor and horse and machinery expenses. The effect of the amount of feed fed an acre to productive livestock on labor and horse and machinery costs per crop acre is shown graphically in Figures 5 and 6.

These charts show that as the size of farms increased the cost per crop acre decreased more than twice as fast for labor as for horses and machinery. For example, with farms feeding \$20 worth of feed per acre, the labor cost per crop acre decreased from about \$18.70 to \$10.20

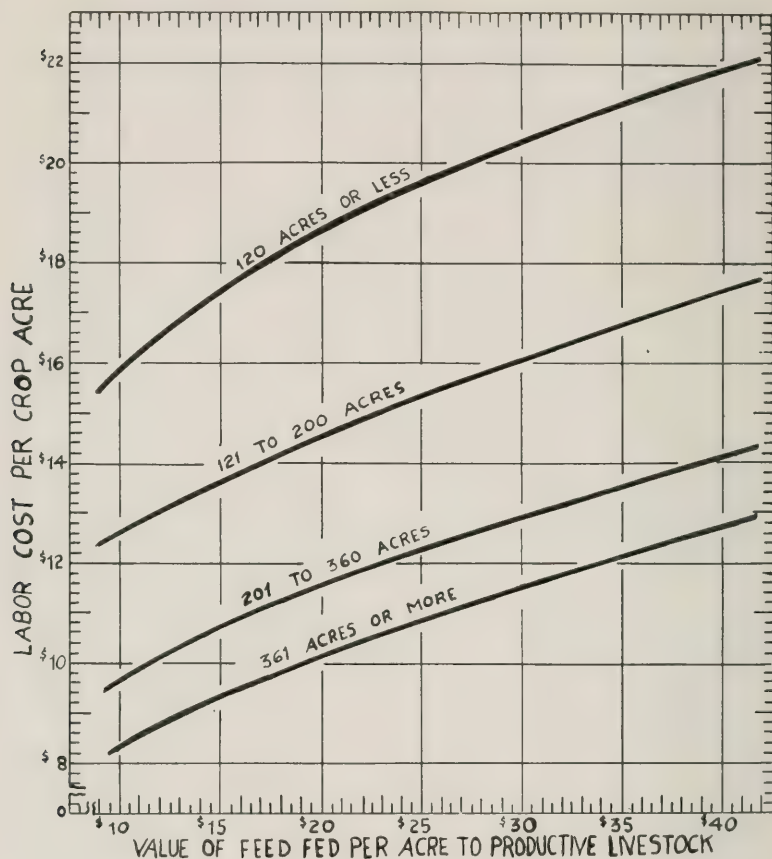


FIG. 5.—LABOR COST PER CROP ACRE FOR FARMS OF VARYING SIZE AND WITH VARYING AMOUNTS OF FEED FED TO PRODUCTIVE LIVESTOCK, FARMING-TYPE AREAS 2, 3, 4, AND 5, 1943

and horse and machinery cost decreased from about \$10.20 to \$7.15 as the size of farm increased from 120 acres to 361 acres or more. In the former case the decrease was \$8.50, but in the latter it was only \$3.05. If labor cost in relation to horse and machinery cost had been lower, the difference would not have been so great. However, the comparison focuses attention on the possibility that the adjustment to size of farm business presents a bigger problem for labor than for machinery. In 1943, cost per crop acre was higher for labor than for horses and machinery for each farm size group.

Five other significant things are apparent in these charts: (1) The costs per crop acre increased as the size of the farms decreased; (2) the

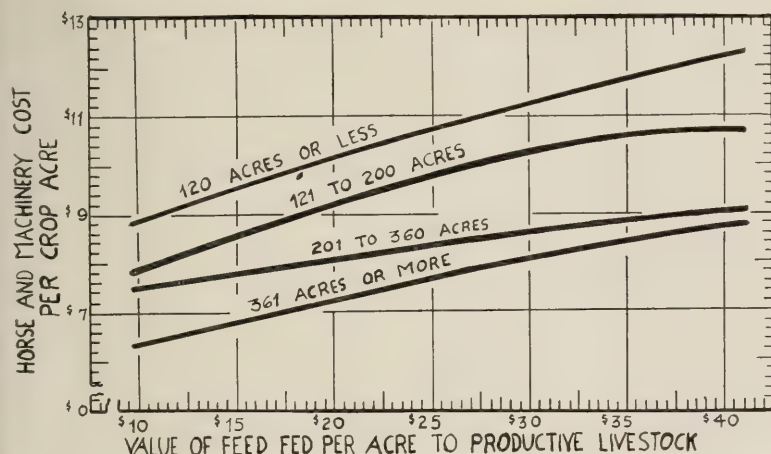


FIG. 6.—HORSE AND MACHINERY COST PER CROP ACRE FOR FARMS OF VARYING SIZE AND WITH VARYING AMOUNTS OF FEED FED TO PRODUCTIVE LIVESTOCK, FARMING-TYPE AREAS 2, 3, 4, AND 5, 1943

costs increased as the amount of feed fed per acre increased; (3) the costs (especially labor costs) decreased much more rapidly when the size of farms increased from 120 acres or less to 201-360 acres than when they increased from 201-360 to 360 acres, or more (this situation is explained in part by the fact that dairy cattle and poultry predominate on the smaller farms and that beef cattle predominate on the larger farms); (4) the labor costs increased rapidly as the feed fed increased from \$10 to about \$20 an acre; and (5) the labor costs increased less rapidly but more uniformly from \$20 to \$40 an acre, especially for farms in the larger size groups.

Farmers who know what their cost for labor and for horse and machinery expense per crop acre was in 1943 will find that these data contain a basis for comparing their expenses with averages for other farms of the same size and with the same intensity of livestock.¹

Data for Counties and Groups of Counties

Averages were calculated for each county with sufficient records to give significant averages and for groups of counties with small numbers of records. These averages are arranged in Table 18 according to farming-type areas. The averages for counties or groups of counties for Area 1 come first in the list, and those for Area 9 at the end of it. For summaries by farming-type areas see Tables 16 and 17.

¹Data for other areas of Illinois are available in the area reports for 1943.

TABLE 16.—INVESTMENTS, CASH RECEIPTS, CASH EXPENSES, AND INVENTORY CHANGES
AVERAGES PER FARM BY FARMING-TYPE AREAS, 1943

Item	Area 1*	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Cash receipts, total.....	\$43 907	\$36 759	\$36 973	\$45 486	\$33 006	\$19 779	\$16 781	\$20 567	\$14 987
Land.....	19 244	18 118	20 651	28 927	18 216	9 987	8 161	10 841	6 742
Land improvements.....	18 902	724	726	780	757	463	692	562	1 008
Farm buildings.....	8 321	5 064	3 534	3 866	3 233	2 412	1 813	2 065	1 816
Machinery and equipment.....	3 176	2 680	2 614	2 984	2 589	2 269	1 833	1 900	1 674
Feed and grain.....	4 234	3 679	3 868	4 688	3 282	2 001	1 628	2 402	1 630
Livestock, total.....	8 030	6 494	5 580	4 241	4 929	2 647	2 654	2 797	2 117
Horses.....									
Cattle.....									
Hogs.....									
Sheep.....									
Poultry and eggs.....									
Dairy sales.....									
Cash expenses, total.....	\$12 228	\$8 299	\$7 855	\$7 071	\$8 127	\$4 286	\$4 010	\$4 179	\$3 052
Land improvements.....	305	201	187	269	218	189	315	327	186
Farm buildings.....	4 763	3 590	1 291	1 545	234	204	145	150	216
Livestock purchases.....	2 443	1 790	2 305	1 577	2 665	560	628	776	274
Feed and grain.....	1 730	1 351	1 482	1 624	2 772	1 435	1 116	1 116	676
Machinery and equipment.....	1 284	566	580	1 538	1 409	994	990	902	806
Hired labor.....	383	279	328	238	248	404	324	411	447
Crop expense.....	334	279	328	417	350	193	182	277	187
Taxes.....	273	149	102	147	144	108	88	67	83
Livestock and miscellaneous.....									
Cash balance.....	\$ 4 704	\$ 6 072	\$ 5 808	\$ 7 205	\$ 5 477	\$ 3 134	\$ 2 328	\$ 3 530	\$ 2 361
Increase in inventory.....	1 877	837	1 127	688	730	271	532	475	272
Total unpaid labor.....	1 511	1 597	1 456	1 359	1 285	1 449	1 172	1 139	1 123
Net farm income.....	\$ 5 070	\$ 5 312	\$ 5 479	\$ 6 534	\$ 4 922	\$ 1 956	\$ 1 688	\$ 2 866	\$ 1 510

*Includes Farm Bureau Farm Management Service Records.

TABLE 17.—FACTORS HELPING TO ANALYZE THE FARM BUSINESS BY FARMING-TYPE AREAS, 1943

Item	Area 1*	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Size of farm, acres.....	207	196	224	258	260	217	259	238	238
Tillable land (percent).....	82	84	79	90	79	80	84	85	76
Inventory Basis									
Gross receipts per acre ^a	\$53.68	\$48.64	\$43.55	\$42.86	\$34.57	\$24.73	\$18.08	\$24.96	\$18.62
Total cash expense per acre ^b	29.22	21.52	19.10	17.57	15.61	15.72	11.56	12.89	12.29
Net receipts per acre.....	\$24.46	\$27.12	\$24.45	\$25.29	\$18.96	\$9.01	\$6.52	\$12.07	\$6.33
Cash Basis									
Gross receipts per acre.....	\$81.68	\$73.36	\$60.97	\$55.25	\$52.40	\$34.16	\$24.49	\$32.46	\$22.70
Total cash expense per acre ^b	66.28	50.52	41.55	32.62	36.25	26.40	20.02	22.39	17.51
Net cash income per acre.....	\$15.40	\$22.84	\$19.42	\$22.63	\$16.15	\$7.76	\$4.47	\$10.07	\$5.19
Acres in:									
Corn.....	68	64	73	82	65	34	48	59	31
Oats.....	35	35	30	31	21	20	15	11	12
Wheat.....	1	1	10	10	14	30	17	23	20
Soybeans.....	6	7	19	54	40	16	19	20	12
Bushels per acre:									
Corn.....	70	70	63	58	53	36	32	38	37
Oats.....	48	44	38	36	30	24	18	24	25
Wheat.....	21	21	14	17	15	18	15	19	18
Soybeans.....	24	22	23	23	22	13	12	12	14
Value of feed fed to livestock.....									
Returns per \$100 feed fed.....	\$7.588	\$6.410	\$6.335	\$4.446	\$5.671	\$3.321	\$2.899	\$3.352	\$2.264
Feed fed per acre to livestock.....	145	136	138	139	140	155	153	148	172
Returns per acre from livestock.....	\$36.60	\$32.72	\$28.27	\$17.21	\$21.85	\$15.29	\$11.20	\$14.11	\$9.50
Horse and machinery cost per crop acre.....	53.07	44.61	38.97	23.90	30.62	23.77	17.10	20.92	16.38
Labor cost per crop acre.....	\$12.99	\$9.28	\$9.03	\$7.70	\$8.34	\$8.39	\$6.44	\$6.54	\$8.11
Value of land per acre.....	18.88	15.33	14.30	10.24	11.70	13.70	9.87	10.71	13.76
Value of land improvements per acre.....	\$	\$	\$	\$	\$	\$	\$	\$	\$
Value of buildings per acre.....	93	92	92	112	70	46	32	46	28
Total investment per acre.....	4	4	3	3	3	2	3	2	4
Number of farms included.....	212	188	165	176	127	91	65	87	63
Number of farms included.....	157	235	311	538	291	297	125	77	22

*Includes Farm Bureau Farm Management Service Records.

^aFarm products used in household excluded.^bIncludes charge for unpaid labor.

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943

Accounting Item	McHenry	Boone	Kane	Lake, Cook, DuPage	
Capital investment, total.	1	\$35 908	\$40 416	\$56 269	\$38 126
Land.	2	14 963	18 127	23 841	18 640
Land improvements.	3	780	709	1 197	760
Farm buildings.	4	7 904	6 703	10 476	6 852
Horses.	5	320	307	337	261
Cattle.	6	4 735	5 680	9 110	3 735
Hogs.	7	617	1 389	1 966	1 178
Sheep.	8	18	337	65	39
Poultry.	9	197	145	171	193
Feed and grain.	10	3 432	3 919	5 458	3 649
Machinery and equipment.	11	2 942	3 100	3 648	2 819
Income, net increases, total.	12	\$10 844	\$11 125	\$14 038	\$ 9 700
Cattle.	13	1 072	2 646	5 352	1 126
Dairy sales.	14	6 955	4 456	3 409	3 294
Hogs.	15	1 332	2 652	3 923	2 606
Sheep.	16	9	167	69	13
Poultry and eggs.	17	721	472	530	639
Farm products used in household.	18	396	410	438	405
Feed and grain.	19	41	.....	.....	1 272
AAA payment.	20	258	294	264	267
Labor and miscellaneous.	21	60	28	53	78
Expenses, net decreases, total.	22	\$ 4 078	\$ 4 409	\$ 5 638	\$ 4 333
Land improvements.	23	252	234	336	275
Farm buildings.	24	588	618	909	673
Feed and grain.	25	.....	247	354	.....
Machinery and equipment.	26	1 423	1 611	1 890	1 502
Hired labor.	27	1 233	1 140	1 423	1 254
Taxes.	28	293	312	370	349
Livestock and miscellaneous.	29	289	247	356	280
Receipts less expenses.	30	\$ 6 766	\$ 6 716	\$ 8 400	\$ 5 367
Unpaid labor.	31	1 640	1 651	1 506	1 244
Net farm earnings.	32	\$ 5 126	\$ 5 065	\$ 6 894	\$ 4 123
Rate earned on investment, percent.	33	14.3	12.5	12.2	10.8
Labor and management earnings.	34	\$ 4 453	\$ 4 283	\$ 5 252	\$ 3 254
Excess of sales over expenses.	35	4 692	4 214	5 608	3 729
Increase in inventory.	36	1 678	2 092	2 354	1 233
Number of farms included.	37	44	27	52	34
Size of farm, acres.	38	196	218	222	191
Gross earnings per acre.	39	\$ 55.33	\$ 51.15	\$ 63.12	\$ 50.89
Total expenses per acre.	40	29.18	27.86	32.12	29.26
Net earnings per acre.	41	\$ 26.15	\$ 23.29	\$ 31.00	\$ 21.63
Value of land per acre.	42	\$ 76	\$ 83	\$107	\$ 98
Value of improved land per acre.	43	84	90	112	103
Value of buildings per acre.	44	40	31	47	36
Total investment per acre.	45	183	186	253	200
Percent of land area tillable.	46	76.8	80.5	85.3	83.6
Percent of tillable land in—					
Corn.	47	35.4	38.9	45.5	36.5
Oats.	48	19.8	22.3	21.0	20.0
Wheat.	49	.5	1.2	.4	1.6
Soybeans for grain.	50	.9	1.3	4.3	7.3
Other cultivated crops.	51	5.2	5.1	3.7	3.8
Legume hay and pasture.	52	23.6	18.4	14.3	19.0
Nonlegume hay and pasture.	53	14.6	12.8	10.8	11.8
Bushels per acre: Corn.	54	66.8	70.8	74.7	60.3
Oats.	55	44.3	46.9	51.2	48.7
Wheat.	56	20.0	22.4	21.4	22.3
Barley.	57	27.4	28.2	25.6	29.0
Soybeans.	58	25.0	23.6	25.2	21.6
Feed fed per acre.	59	\$ 30.29	\$ 36.32	\$ 45.76	\$ 28.95
Returns for \$100 feed fed.	60	175	136	134	145
Poultry returns per hen.	61	5.12	5.05	5.10	5.35
Number of litters farrowed.	62	11.1	13.1	21.6	17.4
Returns per litter.	63	\$167	\$186	\$205	\$196
Dairy returns per cow.	64	252	222	241	229
Horse and machinery cost per crop acre.	65	\$ 13.87	\$ 12.27	\$ 13.10	\$ 12.37
Labor cost per crop acre.	66	23.06	18.69	17.27	17.28
Land improvements cost per acre.	67	1.29	1.08	1.51	1.44
Farm buildings cost per acre.	68	3.00	2.84	4.09	3.53
Taxes per acre.	69	1.49	1.43	1.66	1.83

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—Continued

	De Kalb	Stephen- son	Lee	Ogle	Rock Island	Winne- bago	Whiteside	Jo Davis
1	\$51 830	\$29 679	\$49 926	\$37 290	\$29 766	\$37 232	\$36 444	\$28 245
2	26 269	12 531	27 413	17 291	14 703	14 647	16 390	12 298
3	950	561	985	814	730	1 051	735	768
4	6 754	5 609	5 574	5 705	3 858	8 250	6 473	4 827
5	221	234	194	249	215	286	235	325
6	6 317	3 226	4 250	4 253	2 306	4 204	3 703	3 403
7	2 212	1 553	2 041	1 879	2 049	1 641	2 069	1 495
8	144	43	162	48	77	232	79	128
9	163	191	156	163	165	159	169	168
10	5 405	3 084	5 889	4 179	3 221	3 683	4 044	2 576
11	3 395	2 647	3 262	2 709	2 442	3 079	2 547	2 257
12	\$13 533	\$ 9 420	\$13 018	\$10 619	\$ 9 145	\$10 454	\$10 152	\$ 8 791
13	4 064	1 390	2 768	2 748	1 276	1 844	2 160	1 540
14	1 173	2 870	1 316	1 471	1 117	3 489	1 528	2 145
15	4 819	3 572	4 813	3 984	4 577	3 327	4 660	3 729
16	123	43	126	58	66	80	74	105
17	586	694	585	619	622	620	551	602
18	398	412	393	393	481	420	440	460
19	1 882	.....	2 535	855	532	85	343	.....
20	439	391	433	456	432	546	356	197
21	49	48	49	35	42	43	40	13
22	\$ 3 645	\$ 2 776	\$ 3 303	\$ 2 897	\$ 2 471	\$ 3 244	\$ 3 027	\$ 3 066
23	267	125	263	190	143	217	190	157
24	459	336	470	357	310	526	385	343
25	...	215	.....	.....	.....	.....	.....	597
26	1 420	1 064	1 342	1 176	1 124	1 224	1 228	923
27	923	610	742	689	428	769	736	633
28	341	223	302	320	319	295	285	230
29	235	203	184	165	147	213	203	183
30	\$ 9 888	\$ 6 644	\$ 9 715	\$ 7 722	\$ 6 674	\$ 7 210	\$ 7 125	\$ 5 725
31	1 573	1 648	1 497	1 516	1 676	1 525	1 488	1 607
32	\$ 8 315	\$ 4 996	\$ 8 218	\$ 6 206	\$ 4 998	\$ 5 685	\$ 5 637	\$ 4 118
33	16.0	16.8	16.5	16.6	16.8	15.3	15.5	14.6
34	\$ 6 869	\$ 4 652	\$ 6 838	\$ 5 504	\$ 4 673	\$ 4 914	\$ 4 952	\$ 3 833
35	8 764	4 819	9 409	6 150	4 857	5 821	5 851	4 213
36	726	1 413	-87	1 179	1 336	969	834	1 052
37	121	86	48	53	54	47	45	47
38	214	176	240	208	189	237	210	234
39	\$ 63.36	\$ 53.49	\$ 54.31	\$ 51.18	\$ 48.36	\$ 44.15	\$ 48.25	\$ 37.65
40	24.43	25.12	20.03	21.27	21.93	20.14	21.46	20.01
41	\$ 38.93	\$ 28.37	\$ 34.28	\$ 29.91	\$ 26.43	\$ 24.01	\$ 26.79	\$ 17.64
42	\$123	\$ 71	\$114	\$ 83	\$ 78	\$ 62	\$ 78	\$ 53
43	125	77	118	91	86	69	86	67
44	32	32	23	27	20	35	31	21
45	243	169	208	180	157	157	173	121
46	91.6	80.5	88.7	80.7	77.2	72.8	80.1	57.2
47	42.1	33.5	38.0	37.3	44.2	36.0	39.5	34.5
48	20.4	23.9	20.8	23.5	17.5	20.6	17.3	20.1
49	.4	.4	.9	.5	.3	.7	3.7	.1
50	4.8	1.5	11.3	3.7	3.2	2.4	8.5	.....
51	8.6	2.5	3.3	4.7	1.4	4.8	2.0	1.9
52	14.8	24.7	19.0	17.2	22.7	24.1	15.1	25.1
53	8.9	13.5	6.7	13.1	10.7	11.4	13.9	18.3
54	72.7	71.9	71.4	72.6	67.1	68.7	70.7	67.3
55	50.5	41.5	44.1	41.3	39.0	36.5	41.8	35.8
56	32.5	15.0	25.8	15.5	20.0	19.2	20.5	20.0
57	29.2	21.7	.....	15.4	.....	20.4	25.0	17.5
58	23.4	20.0	23.8	21.3	20.6	18.5	19.3	.....
59	\$ 40.41	\$ 32.70	\$ 30.76	\$ 32.16	\$ 28.46	\$ 27.49	\$ 32.22	\$ 22.59
60	128	154	134	137	149	149	137	160
61	5.46	5.11	5.49	5.71	5.13	5.73	5.18	5.18
62	25.7	20.5	25.3	21.3	24.6	20.4	27.7	18.4
63	\$189	\$182	\$205	\$194	\$190	\$177	\$182	\$194
64	190	180	179	186	141	209	168	155
65	\$ 9.26	\$ 10.85	\$ 8.24	\$ 9.65	\$ 10.86	\$ 10.01	\$ 10.23	\$ 11.05
66	14.31	19.39	12.22	15.45	17.49	15.99	15.67	21.04
67	1.25	.71	1.10	.92	.76	.92	.90	.67
68	2.15	1.91	1.96	1.72	1.64	2.22	1.83	1.47
69	1.60	1.27	1.26	1.54	1.69	1.25	1.35	.98

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—*Continued*

Accounting Item	Carroll	Henry	McDon- ough	Knox
Capital investment, total.....1	\$30 994	\$46 191	\$43 848	\$48 591
Land.....2	14 339	24 193	24 359	26 116
Land improvements.....3	644	913	1 022	1 154
Farm buildings.....4	4 721	4 931	4 009	4 627
Horses.....5	302	197	199	197
Cattle.....6	3 729	4 672	2 979	4 649
Hogs.....7	2 046	3 159	3 042	2 612
Sheep.....8	230	120	104	135
Poultry.....9	186	183	153	119
Feed and grain.....10	2 889	4 733	4 895	5 639
Machinery and equipment.....11	1 908	3 090	3 086	3 343
Income, net increases, total.....12	\$ 8 600	\$12 645	\$12 040	\$13 339
Cattle.....13	2 117	3 284	2 098	2 527
Dairy sales.....14	1 203	647	496	800
Hogs.....15	3 796	7 069	6 966	5 919
Sheep.....16	109	102	46	110
Poultry and eggs.....17	743	632	672	422
Farm products used in household.....18	416	424	421	469
Feed and grain.....19	.....	122	784	2 608
AAA payment.....20	208	333	517	429
Labor and miscellaneous.....21	8	32	40	55
Expenses, net decreases, total.....22	\$ 2 876	\$ 3 624	\$ 3 467	\$ 3 696
Land improvements.....23	115	203	183	232
Farm buildings.....24	278	405	362	387
Feed and grain.....25	844	.....	.....	.....
Machinery and equipment.....26	887	1 460	1 455	1 451
Hired labor.....27	346	925	885	996
Taxes.....28	255	416	346	428
Livestock and miscellaneous.....29	151	215	236	202
Receipts less expenses.....30	\$ 5 724	\$ 9 021	\$ 8 573	\$ 9 643
Unpaid labor.....31	1 571	1 551	1 450	1 453
Net farm earnings.....32	\$ 4 153	\$ 7 470	\$ 7 123	\$ 8 190
Rate earned on investment, percent.....33	13.4	16.2	16.2	16.9
Labor and management earnings.....34	\$ 3 728	\$ 6 302	\$ 6 048	\$ 6 897
Excess of sales over expenses.....35	4 398	7 735	7 417	8 047
Increase in inventory.....36	910	862	735	1 127
Number of farms included.....37	27	82	67	52
Size of farms, acres.....38	178	238	231	288
Gross earnings per acre.....39	\$ 48.42	\$ 53.11	\$ 52.08	\$ 46.40
Total expenses per acre.....40	25.04	21.74	21.27	17.91
Net earnings per acre.....41	\$ 23.38	\$ 31.37	\$ 30.81	\$ 28.49
Value of land per acre.....42	\$ 81	\$102	\$105	\$ 91
Value of improved land per acre.....43	86	109	117	108
Value of buildings per acre.....44	27	21	17	16
Total investment per acre.....45	175	194	190	169
Percent of land area tillable.....46	82.3	83.1	82.3	74.5
Percent of tillable land in—				
Corn.....47	37.1	43.1	42.2	39.7
Oats.....48	22.1	17.5	15.2	15.2
Wheat.....49	2	5	2.7	1.2
Soybeans for grain.....50	1.4	5.4	15.6	12.4
Other cultivated crops.....51	5.3	3.0	2.5	5.0
Legume hay and pasture.....52	20.4	18.1	14.5	15.5
Nonlegume hay and pasture.....53	13.5	12.4	7.3	11.0
Bushels per acre: Corn.....54	71.1	71.0	70.9	67.3
Oats.....55	42.0	45.6	38.1	36.0
Wheat.....56	20.0	17.8	15.3	14.4
Barley.....57	18.6	.....	15.0	30.0
Soybeans.....58	25.5	24.3	24.2	25.1
Feed fed per acre.....59	\$ 36.77	\$ 37.44	\$ 34.58	\$ 25.36
Returns for \$100 feed fed.....60	127	135	133	139
Poultry returns per hen.....61	4.76	4.81	6.27	5.32
Number of litters farrowed.....62	22.5	35.8	40.3	34.8
Returns per litter.....63	\$176	\$189	\$180	\$187
Dairy returns per cow.....64	140	135	119	150
Horse and machinery cost per crop acre.....65	\$ 9.25	\$ 10.30	\$ 9.85	\$ 8.88
Labor cost per crop acre.....66	16.21	15.55	14.07	13.34
Land improvements cost per acre.....67	.65	.85	.79	.81
Farm buildings cost per acre.....68	1.57	1.70	1.57	1.35
Taxes per acre.....69	1.44	1.75	1.50	1.49

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—Continued

	Bureau	Marshall-Putnam	Peoria	Fulton	Hancock	Mercer	Warren	Stark
1	\$48 120	\$57 299	\$45 517	\$34 200	\$36 972	\$46 014	\$43 190	\$43 594
2	25 473	32 596	25 769	19 848	21 016	23 314	24 023	24 822
3	1 108	1 035	947	840	709	989	869	660
4	5 118	5 608	4 744	3 253	3 154	4 588	3 913	4 227
5	165	190	208	175	251	267	308	138
6	4 321	4 298	2 865	2 229	3 293	4 498	3 520	1 756
7	2 767	3 254	2 816	2 020	1 966	2 689	2 814	2 612
8	274	497	174	134	114	87	263	795
9	236	150	168	134	93	162	130	157
10	5 382	6 471	4 793	3 410	3 840	6 383	4 627	5 425
11	3 276	3 200	3 033	2 522	2 536	3 037	2 723	3 002
12	\$13 077	\$15 348	\$12 450	\$ 9 678	\$10 314	\$13 459	\$10 929	\$12 258
13	2 942	3 142	1 906	1 520	2 328	3 687	2 601	982
14	971	727	610	688	552	615	297	582
15	6 616	8 748	6 390	5 468	5 894	6 546	6 571	5 410
16	159	231	116	90	112	76	118	345
17	739	429	626	540	413	560	467	524
18	439	396	441	417	367	393	406	384
19	766	1 153	1 750	416	120	1 119	.....	3 620
20	389	471	502	483	483	413	426	306
21	56	51	109	56	45	50	43	105
22	\$ 3 337	\$ 3 964	\$ 3 619	\$ 3 053	\$ 2 953	\$ 3 783	\$ 3 157	\$ 3 146
23	278	235	236	174	143	178	208	147
24	404	455	438	323	234	400	371	361
25	.....	.....	.....	.....	.....	.....	19	.....
26	1 314	1 618	1 458	1 249	1 153	1 448	1 338	1 357
27	779	977	932	750	925	982	666	751
28	313	439	361	397	331	504	341	356
29	249	240	194	160	167	271	214	174
30	\$ 9 740	\$11 384	\$ 8 831	\$ 6 625	\$ 7 361	\$ 9 676	\$ 7 772	\$ 9 112
31	1 549	1 592	1 313	1 516	1 381	1 427	1 429	1 384
32	\$ 8 191	\$ 9 792	\$ 7 518	\$ 5 109	\$ 5 980	\$ 8 249	\$ 6 343	\$ 7 728
33	17.0	17.1	16.5	14.9	16.2	17.9	14.7	17.7
34	\$ 6 847	\$ 8 024	\$ 6 281	\$ 4 554	\$ 5 209	\$ 7 013	\$ 5 347	\$ 6 663
35	7 368	10 047	7 713	4 433	6 016	7 448	6 862	7 548
36	1 933	941	677	1 775	978	1 835	504	1 180
37	46	45	40	45	25	29	34	36
38	228	301	243	246	249	283	241	225
39	\$ 57.36	\$ 50.96	\$ 51.28	\$ 39.42	\$ 41.40	\$ 47.56	\$ 45.33	\$ 54.55
40	21.43	18.45	20.31	18.61	17.40	18.41	19.02	20.16
41	\$ 35.93	\$ 32.51	\$ 30.97	\$ 20.81	\$ 24.00	\$ 29.15	\$ 26.31	\$ 34.39
42	\$112	\$108	\$106	\$ 79	\$ 84	\$ 82	\$100	\$110
43	119	123	117	97	93	97	110	115
44	22	19	20	13	13	16	16	19
45	211	190	187	139	148	163	179	194
46	85.4	79.5	83.2	70.8	79.4	73.6	80.0	87.4
47	43.8	41.4	40.4	36.9	34.4	44.5	44.1	42.7
48	19.1	17.5	17.7	15.5	12.7	17.7	17.3	17.9
49	.4	1.8	1.1	4.1	1.8	.1	.6	.....
50	5.3	11.4	11.8	13.8	19.1	6.9	8.5	8.8
51	1.9	3.1	4.6	1.5	2.2	1.5	1.6	5.7
52	21.2	17.4	17.0	18.1	19.3	18.3	16.2	16.7
53	8.3	7.4	7.4	10.1	10.5	11.0	11.7	8.2
54	72.7	61.9	62.1	59.9	60.4	71.5	57.6	66.2
55	46.3	39.3	36.9	34.6	32.1	35.6	34.4	38.6
56	23.8	22.9	20.5	13.1	10.0	6.7	20.0	.....
57	.....	20.0	.....	.....	.....	.....	28.0	.....
58	24.4	24.3	23.4	22.1	24.2	20.6	23.1	24.8
59	\$ 38.71	\$ 31.20	\$ 29.07	\$ 24.48	\$ 28.05	\$ 28.98	\$ 31.65	\$ 24.67
60	133	145	142	144	137	144	136	147
61	4.95	5.12	5.67	5.84	5.32	5.44	5.88	5.14
62	34.7	47.9	33.8	32.6	26.4	35.3	38.5	28.1
63	\$206	\$190	\$200	\$181	\$195	\$171	\$178	\$196
64	155	145	144	127	117	155	112	141
65	\$ 9.05	\$ 8.66	\$ 9.30	\$ 9.72	\$ 8.35	\$ 9.92	\$ 9.72	\$ 8.77
66	14.09	12.27	12.15	15.51	13.95	14.39	12.86	12.50
67	1.22	.78	.97	.71	.57	.63	.86	.65
68	1.77	1.51	1.80	1.32	.94	1.41	1.54	1.61
69	1.37	1.46	1.49	1.62	1.33	1.78	1.41	1.58

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—*Continued*

Accounting Item	Hender- son	McLean	Tazewell	Ford
Capital investment, total.	1 \$44 068	\$61 327	\$51 894	\$53 449
Land.	2 23 703	36 825	30 678	33 078
Land improvements.	3 767	958	1 091	835
Farm buildings.	4 3 480	6 480	5 139	4 540
Horses.	5 331	238	213	302
Cattle.	6 4 322	3 286	3 031	3 752
Hogs.	7 2 973	2 622	1 781	1 287
Sheep.	8 186	200	446	169
Poultry.	9 123	162	184	192
Feed and grain.	10 4 856	6 925	5 897	6 228
Machinery and equipment.	11 3 327	3 631	3 434	3 066
Income, net increases, total.	12 \$12 629	\$16 005	\$13 734	\$12 602
Cattle.	13 2 984	2 409	1 914	2 050
Dairy sales.	14 291	805	1 310	526
Hogs.	15 6 953	6 483	4 622	2 786
Sheep.	16 184	174	256	147
Poultry and eggs.	17 427	582	646	777
Farm products used in household.	18 388	375	437	363
Feed and grain.	19 1 000	4 621	3 912	5 497
AAA payment.	20 373	487	563	348
Labor and miscellaneous.	21 29	69	74	108
Expenses, net decreases, total.	22 \$ 4 090	\$ 4 556	\$ 3 715	\$ 3 101
Land improvements.	23 176	204	214	142
Farm buildings.	24 317	454	405	329
Feed and grain.	25 . . . . .	. . . . .	. . . . .	. . . . .
Machinery and equipment.	26 1 768	1 828	1 513	1 335
Hired labor.	27 1 168	1 288	926	740
Taxes.	28 419	523	432	412
Livestock and miscellaneous.	29 242	259	225	143
Receipts less expenses.	30 \$ 8 539	\$11 449	\$10 019	\$ 9 501
Unpaid labor.	31 1 511	1 302	1 445	1 333
Net farm earnings.	32 \$ 7 028	\$10 147	\$ 8 574	\$ 8 168
Rate earned on investment, percent.	33 16.0	16.6	16.5	15.3
Labor and management earnings.	34 \$ 5 986	\$ 8 114	\$ 7 114	\$ 6 537
Excess of sales over expenses.	35 6 197	8 764	9 365	9 260
Increase in inventory.	36 1 954	2 310	217	-122
Number of farms included.	37 45	79	60	53
Size of farm, acres.	38 295	295	256	266
Gross earnings per acre.	39 \$ 42.75	\$ 54.20	\$ 53.65	\$ 47.30
Total expenses per acre.	40 18.96	19.84	20.16	16.64
Net earnings per acre.	41 \$ 23.79	\$ 34.36	\$ 33.49	\$ 30.66
Value of land per acre.	42 \$ 80	\$125	\$120	\$124
Value of improved land per acre.	43 93	128	124	125
Value of buildings per acre.	44 12	22	20	17
Total investment per acre.	45 149	208	203	201
Percent of land area tillable.	46 76.9	90.4	85.5	94.7
Percent of tillable land in—				
Corn.	47 41.4	43.1	41.2	41.1
Oats.	48 18.1	17.2	13.7	21.5
Wheat.	49 1.2	.2	4.8	.4
Soybeans for grain.	50 12.9	16.4	16.8	12.9
Other cultivated crops.	51 2.7	2.4	2.5	2.1
Legume hay and pasture.	52 15.3	13.1	14.1	14.7
Nonlegume hay and pasture.	53 8.4	7.6	6.9	7.3
Bushels per acre: Corn.	54 62.5	65.9	62.5	60.8
Oats.	55 38.6	35.6	38.3	32.0
Wheat.	56 8.9	11.7	21.5	20.0
Barley.	57 . . . . .	. . . . .	. . . . .	. . . . .
Soybeans.	58 23.0	25.4	25.0	24.4
Feed fed per acre.	59 \$ 28.98	\$ 26.51	\$ 23.70	\$ 18.67
Returns for \$100 feed fed.	60 130	137	150	133
Poultry returns per hen.	61 5.06	5.30	5.42	5.31
Number of litters farrowed.	62 43.4	34.4	26.0	16.4
Returns per litter.	63 \$181	\$208	\$196	\$173
Dairy returns per cow.	64 103	154	191	130
Horse and machinery cost per crop acre.	65 \$ 10.25	\$ 8.57	\$ 8.74	\$ 6.94
Labor cost per crop acre.	66 13.64	10.85	12.03	9.30
Land improvements cost per acre.	67 .60	.69	.84	.53
Farm buildings cost per acre.	68 1.07	1.54	1.58	1.23
Taxes per acre.	69 1.42	1.77	1.69	1.55

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—*Continued*

	Livingston	Woodford	La Salle	Champaign	Iroquois	Vermilion	Macon	Sangamon
1	\$53 246	\$52 400	\$60 723	\$49 931	\$41 242	\$44 030	\$52 069	\$49 347
2	32 929	32 266	33 893	33 848	24 495	27 344	35 852	30 768
3	1 172	1 068	1 171	569	1 077	1 136	572	1 106
4	4 962	4 927	7 068	3 726	3 995	4 005	3 797	3 755
5	231	219	154	182	259	187	248	217
6	2 532	3 018	4 394	1 647	1 728	1 960	2 072	4 692
7	1 231	1 950	1 989	875	1 021	1 272	993	1 847
8	297	328	209	99	479	99	46	72
9	319	275	198	154	167	122	155	135
10	6 219	5 293	8 091	5 547	5 414	4 624	5 282	3 811
11	3 354	3 056	3 556	3 284	2 607	3 281	3 052	2 944
12	\$12 500	\$12 431	\$14 467	\$12 656	\$10 734	\$12 636	\$12 577	\$11 005
13	1 353	1 870	2 828	806	1 003	892	1 191	3 159
14	773	668	1 106	674	529	933	592	485
15	2 513	4 535	4 896	2 214	2 316	3 170	2 315	4 656
16	62	220	114	51	170	82	29	47
17	1 541	981	620	592	672	535	620	501
18	414	406	413	369	373	341	389	403
19	5 365	3 296	3 901	7 271	5 034	5 927	6 928	1 126
20	406	386	529	609	605	693	488	539
21	73	69	60	70	32	63	25	89
22	\$ 3 293	\$ 3 606	\$ 4 164	\$ 2 747	\$ 2 898	\$ 3 829	\$ 3 264	\$ 3 676
23	199	226	288	132	216	363	131	207
24	369	352	535	272	269	326	296	417
25	.....	.....	.....	.....	.....	.....	.....	.....
26	1 465	1 449	1 603	1 378	1 227	1 555	1 451	1 531
27	686	853	1 094	383	625	938	726	929
28	371	492	400	446	418	491	501	400
29	203	234	244	136	143	156	159	192
30	\$ 9 207	\$ 8 825	\$10 303	\$ 9 909	\$ 7 836	\$ 8 807	\$ 9 313	\$ 7 329
31	1 371	1 344	1 455	1 320	1 278	1 272	1 297	1 302
32	\$ 7 836	\$ 7 481	\$ 8 848	\$ 8 589	\$ 6 558	\$ 7 535	\$ 8 016	\$ 6 027
33	14.7	14.3	14.6	17.2	15.9	17.1	15.4	12.2
34	\$ 6 233	\$ 5 887	\$ 6 908	\$ 7 101	\$ 5 514	\$ 6 323	\$ 6 409	\$ 4 527
35	8 494	7 144	10 646	8 736	6 872	7 261	8 291	6 994
36	299	1 275	-756	804	591	1 205	633	-68
37	52	74	58	36	35	40	27	35
38	246	244	263	242	227	263	264	267
39	\$ 50.83	\$ 50.99	\$ 55.09	\$ 52.36	\$ 47.35	\$ 47.97	\$ 47.66	\$ 41.29
40	18.97	20.30	21.40	16.82	18.42	19.36	17.28	18.68
41	\$ 31.86	\$ 30.69	\$ 33.69	\$ 35.54	\$ 28.93	\$ 28.61	\$ 30.38	\$ 22.61
42	\$134	\$132	\$129	\$140	\$108	\$104	\$136	\$115
43	136	139	135	141	110	107	137	120
44	20	20	27	15	18	15	14	14
45	217	215	231	207	182	167	199	185
46	92.4	89.1	87.5	93.5	92.9	92.7	95.2	87.4
47	43.8	41.9	45.4	35.1	38.6	31.4	33.0	31.8
48	21.0	19.2	19.2	11.4	17.0	9.9	9.1	10.3
49	.9	.3	.2	2.9	.....	5.0	5.3	6.2
50	14.3	9.3	8.2	31.8	18.5	27.4	33.2	26.6
51	.9	6.5	3.0	.6	3.4	3.8	.8	1.1
52	13.8	15.1	17.1	11.1	13.9	12.2	8.4	11.9
53	5.3	7.7	6.9	7.1	8.6	10.3	10.2	12.1
54	60.5	62.6	62.3	63.7	58.7	61.1	58.8	54.2
55	34.3	39.2	38.3	33.3	31.6	32.3	32.4	32.1
56	20.5	21.4	28.0	21.7	10.0	20.8	18.8	13.4
57	.....	.....	12.5	31.2	.....	.....	.....	.....
58	24.5	25.0	23.7	25.0	24.7	25.1	23.2	22.6
59	\$ 18.32	\$ 25.35	\$ 26.79	\$ 12.29	\$ 16.05	\$ 14.99	\$ 13.09	\$ 26.57
60	146	139	141	156	137	149	147	130
61	6.55	6.79	5.24	5.63	5.62	5.80	5.56	5.50
62	15.9	27.5	28.4	12.1	12.9	15.9	13.3	25.6
63	\$193	\$175	\$185	\$190	\$186	\$202	\$203	\$184
64	143	149	166	140	129	135	131	111
65	\$ 8.20	\$ 8.67	\$ 8.73	\$ 7.48	\$ 7.61	\$ 7.93	\$ 7.23	\$ 8.59
66	10.16	11.46	12.64	8.27	10.44	10.29	9.01	10.94
67	.81	.93	1.10	.55	.95	1.38	.50	.78
68	1.50	1.44	2.04	1.13	1.19	1.24	1.12	1.56
69	1.51	2.02	1.52	1.85	1.84	1.86	1.90	1.50

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—Continued

Accounting Item	Kankakee	Menard	Will	De Witt, Piatt
Capital investment, total..... 1	\$42 348	\$41 720	\$43 711	\$52 011
Land..... 2	24 177	25 594	23 126	33 494
Land improvements..... 3	881	625	916	865
Farm buildings..... 4	4 860	4 093	5 802	4 134
Horses..... 5	158	283	178	239
Cattle..... 6	2 611	2 521	4 163	2 871
Hogs..... 7	1 060	2 113	888	1 356
Sheep..... 8	51	127	48	140
Poultry..... 9	195	163	207	142
Feed and grain..... 10	5 005	3 420	5 057	5 379
Machinery and equipment..... 11	3 350	2 781	3 326	3 391
Income, net increases, total..... 12	\$10 539	\$10 320	\$10 468	\$13 533
Cattle..... 13	1 116	1 731	2 113	1 486
Dairy sales..... 14	1 928	330	1 978	749
Hogs..... 15	2 558	4 522	1 549	3 550
Sheep..... 16	45	71	31	100
Poultry and eggs..... 17	708	666	971	503
Farm products used in household..... 18	344	373	404	408
Feed and grain..... 19	3 368	2 161	3 058	6 222
AAA payment..... 20	391	439	246	413
Labor and miscellaneous..... 21	81	27	118	102
Expenses, net decreases, total..... 22	\$ 3 618	\$ 3 251	\$ 3 607	\$ 3 375
Land improvements..... 23	382	147	220	178
Farm buildings..... 24	434	371	555	368
Feed and grain..... 25	.....	.....	.....	.....
Machinery and equipment..... 26	1 505	1 344	1 482	1 480
Hired labor..... 27	794	797	887	700
Taxes..... 28	297	399	285	471
Livestock and miscellaneous..... 29	206	193	178	178
Receipts less expenses..... 30	\$ 6 921	\$ 7 069	\$ 6 861	\$10 158
Unpaid labor..... 31	1 522	1 264	1 545	1 530
Net farm earnings..... 32	\$ 5 399	\$ 5 805	\$ 5 316	\$ 8 628
Rate earned on investment, percent..... 33	12.8	13.9	12.2	16.6
Labor and management earnings..... 34	\$ 4 475	\$ 4 660	\$ 4 337	\$ 7 040
Excess of sales over expenses..... 35	5 148	6 468	6 812	8 768
Increase in inventory..... 36	1 429	228	-355	982
Number of farms included..... 37	50	22	58	26
Size of farm, acres..... 38	243	267	218	282
Gross earnings per acre..... 39	\$ 43.41	\$ 38.67	\$ 48.11	\$ 48.01
Total expenses per acre..... 40	21.17	16.92	23.68	17.40
Net earnings per acre..... 41	\$ 22.24	\$ 21.75	\$ 24.43	\$ 30.61
Value of land per acre..... 42	\$100	\$ 96	\$106	\$119
Value of improved land per acre..... 43	102	98	109	123
Value of buildings per acre..... 44	20	15	27	15
Total investment per acre..... 45	174	156	201	184
Percent of land area tillable..... 46	91.3	86.8	88.8	91.2
Percent of tillable land in—				
Corn..... 47	38.1	34.0	37.3	35.4
Oats..... 48	17.5	9.1	21.3	13.7
Wheat..... 49	1.3	10.8	.9	3.5
Soybeans for grain..... 50	19.1	19.6	15.7	24.8
Other cultivated crops..... 51	3.2	2.2	3.0	.6
Legume hay and pasture..... 52	13.3	10.0	12.9	10.7
Nonlegume hay and pasture..... 53	7.5	14.3	8.9	11.3
Bushels per acre: Corn..... 54	52.6	54.4	61.3	62.7
Oats..... 55	29.1	31.2	40.4	33.4
Wheat..... 56	21.4	16.5	25.6	20.3
Barley..... 57	16.0	.....	10.0	.....
Soybeans..... 58	18.5	21.6	23.1	26.1
Feed fed per acre..... 59	\$ 18.70	\$ 21.08	\$ 23.32	\$ 16.65
Returns for \$100 feed fed..... 60	146	136	137	143
Poultry returns per hen..... 61	5.17	5.50	5.58	4.83
Number of litters farrowed..... 62	15.8	28.5	11.7	23.7
Returns per litter..... 63	\$196	\$162	\$154	\$170
Dairy returns per cow..... 64	208	111	214	121
Horse and machinery cost per crop acre..... 65	\$ 8.42	\$ 8.40	\$ 9.63	\$ 7.42
Labor cost per crop acre..... 66	11.60	10.90	13.49	9.69
Land improvements cost per acre..... 67	1.57	.55	1.01	.63
Farm buildings cost per acre..... 68	1.79	1.39	2.55	1.31
Taxes per acre..... 69	1.22	1.49	1.31	1.67

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—Continued

	Kendall	Coles, Edgar, Douglas	Moultrie	Logan	Mason	Cass	Grundy	Morgan
1	\$55 207	\$51 608	\$48 095	\$46 594	\$35 121	\$36 321	\$55 100	\$40 680
2	27 173	34 022	33 756	29 570	21 281	23 169	32 231	25 252
3	1 189	929	612	484	795	492	1 157	631
4	7 387	3 477	3 346	3 695	3 526	2 184	5 674	3 098
5	230	186	192	212	277	2 249	257	266
6	6 905	2 502	1 741	3 031	1 512	2 157	2 217	3 036
7	2 801	1 390	662	1 525	813	1 653	1 198	1 826
8	142	67	63	29	11	104	23	87
9	246	136	144	157	192	163	219	156
10	5 748	5 371	4 506	4 611	4 174	3 810	8 474	3 634
11	3 386	3 528	3 073	3 280	2 540	2 340	3 650	2 694
12	\$14 402	\$13 552	\$11 967	\$12 005	\$ 9 411	\$10 526	\$13 468	\$11 644
13	3 787	1 985	1 012	1 908	695	1 291	1 590	1 932
14	1 674	575	1 054	453	302	306	1 595	648
15	5 977	3 979	1 788	3 734	2 082	4 572	3 025	4 611
16	192	55	57	23	12	53	18	96
17	1 139	584	484	622	788	595	718	553
18	432	397	385	397	333	416	392	421
19	817	5 281	6 691	4 087	4 615	2 699	5 626	2 594
20	299	612	451	731	548	522	479	746
21	85	84	45	50	36	72	25	43
22	\$ 3 723	\$ 3 730	\$ 3 367	\$ 3 309	\$ 3 145	\$ 2 729	\$ 3 636	\$ 2 829
23	282	195	124	99	179	112	301	122
24	533	291	280	321	237	172	395	268
25	.....	.....	.....	.....	.....	.....	.....	.....
26	1 377	1 662	1 526	1 502	1 239	1 169	1 684	1 190
27	900	962	776	847	971	719	658	719
28	358	458	508	404	357	387	359	372
29	273	162	153	136	162	170	239	158
30	\$10 679	\$ 9 822	\$ 8 600	\$ 8 696	\$ 6 266	\$ 7 797	\$ 9 832	\$ 8 815
31	1 513	1 349	1 345	1 270	1 211	1 592	1 722	1 286
32	\$ 9 166	\$ 8 473	\$ 7 255	\$ 7 426	\$ 5 055	\$ 6 205	\$ 8 110	\$ 7 529
33	16.6	16.4	15.1	15.9	14.4	17.1	14.7	18.5
34	\$ 7 576	\$ 6 874	\$ 5 855	\$ 6 124	\$ 4 196	\$ 5 424	\$ 6 505	\$ 6 389
35	9 103	8 801	7 188	7 458	5 442	6 199	9 909	7 682
36	1 144	624	1 027	841	491	1 182	-469	712
37	33	48	38	29	30	23	21	30
38	228	285	299	242	315	285	307	251
39	\$ 63.08	\$ 47.48	\$ 40.02	\$ 49.53	\$ 29.84	\$ 36.88	\$ 43.87	\$ 46.45
40	22.93	17.79	15.76	18.89	13.81	15.14	17.45	16.42
41	\$ 40.15	\$ 29.69	\$ 24.26	\$ 30.64	\$ 16.03	\$ 21.74	\$ 26.42	\$ 30.03
42	\$119	\$119	\$113	\$122	\$ 67	\$ 81	\$105	\$101
43	124	124	120	125	71	97	112	110
44	32	12	11	15	11	8	18	12
45	242	181	161	192	111	127	179	162
46	88.3	89.0	87.7	92.9	89.2	74.6	84.6	83.6
47	44.0	35.5	32.7	35.9	29.9	31.1	44.3	33.8
48	23.7	12.0	9.5	11.4	9.7	9.8	17.6	9.8
49	.6	3.2	2.9	7.9	16.6	10.0	.....	8.1
50	6.7	31.4	35.9	24.8	13.6	23.1	17.1	22.4
51	.9	.8	1.2	1.0	9.4	7.9	1.3	1.1
52	16.9	8.3	9.7	11.6	15.5	13.2	14.8	14.3
53	7.2	8.8	8.1	7.4	5.3	4.9	4.9	10.5
54	67.0	58.8	55.4	58.1	48.0	64.4	54.3	62.0
55	47.2	32.1	30.2	31.8	26.8	28.9	34.7	31.5
56	26.4	17.4	18.0	21.5	14.1	16.1	.....	15.1
57	.....	.....	.....	.....	.....	.....	.....	.....
58	24.2	22.8	22.0	24.1	19.5	25.7	20.6	24.2
59	\$ 39.97	\$ 18.42	\$ 10.45	\$ 22.06	\$ 9.50	\$ 18.47	\$ 16.13	\$ 22.84
60	144	143	151	132	139	136	147	143
61	6.27	5.84	5.00	5.21	5.61	4.74	5.58	5.23
62	31.3	21.0	11.4	21.5	13.6	26.2	15.1	26.4
63	\$194	\$208	\$200	\$173	\$166	\$166	\$182	\$181
64	242	119	164	103	115	101	200	141
65	\$ 8.80	\$ 7.82	\$ 7.09	\$ 8.19	\$ 6.45	\$ 7.73	\$ 8.20	\$ 7.62
66	13.35	9.73	8.92	10.58	9.59	13.06	10.47	10.94
67	1.24	.68	.41	.41	.57	.39	.98	.49
68	2.33	1.02	.94	1.32	.75	.60	1.29	1.07
69	1.57	1.60	1.70	1.67	1.13	1.36	1.17	1.48

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—Continued

Accounting Item		Macoupin	Shelby	Christian	Montgomery
Capital investment, total.	1	\$32 251	\$31 555	\$40 932	\$26 902
Land.	2	16 143	19 119	25 247	13 247
Land improvements.	3	896	706	692	594
Farm buildings.	4	4 132	2 856	3 319	2 804
Horses.	5	234	191	183	251
Cattle.	6	3 309	1 551	3 197	3 098
Hogs.	7	1 183	675	1 238	1 584
Sheep.	8	137	110	77	148
Poultry.	9	147	171	156	145
Feed and grain.	10	3 009	3 538	3 924	2 806
Machinery and equipment.	11	3 061	2 638	2 899	2 225
Income, net increases, total.	12	\$ 9 098	\$ 9 162	\$10 299	\$ 8 678
Cattle.	13	2 109	830	2 439	2 209
Dairy sales.	14	1 826	993	600	726
Hogs.	15	3 670	2 185	3 455	4 350
Sheep.	16	83	66	72	88
Poultry and eggs.	17	580	659	524	589
Farm products used in household.	18	354	303	352	397
Feed and grain.	19	401	3 384	2 387	293
AAA payments.	20	75	691	446	26
Labor and miscellaneous.	21	75	51	24	26
Expenses, net decreases, total.	22	\$ 3 202	\$ 2 618	\$ 3 005	\$ 2 941
Land improvements.	23	261	203	156	157
Farm buildings.	24	306	194	305	237
Feed and grain.	25	320	127	1447	576
Machinery and equipment.	26	1 345	573	530	1 109
Hired labor.	27	559	394	412	388
Taxes.	28	276	127	155	307
Livestock and miscellaneous.	29	135	127	155	167
Receipts less expenses.	30	\$ 5 896	\$ 6 544	\$ 7 294	\$ 5 737
Unpaid labor.	31	1 450	1 231	1 291	1 300
Net farm earnings.	32	\$ 4 446	\$ 5 313	\$ 6 003	\$ 4 437
Rate earned on investment, percent.	33	13.8	16.8	14.7	16.5
Labor and management earnings.	34	\$ 3 804	\$ 4 678	\$ 4 881	\$ 4 003
Excess of sales over expenses.	35	4 687	6 062	6 687	5 057
Increase in inventory.	36	855	179	255	283
Number of farms included.	37	29	30	33	25
Size of farm, acres.	38	261	256	252	200
Gross earnings per acre.	39	\$ 34.93	\$ 35.86	\$ 40.82	\$ 43.32
Total expenses per acre.	40	17.86	15.07	17.03	21.17
Net earnings per acre.	41	\$ 17.07	\$ 20.79	\$ 23.79	\$ 22.15
Value of land per acre.	42	\$ 62	\$ 75	\$100	\$ 66
Value of improved land per acre.	43	68	78	101	70
Value of buildings per acre.	44	16	11	13	14
Total investments per acre.	45	124	124	162	134
Percent of land area tillable.	46	79.8	89.4	91.8	86.0
Percent of land tillable in—					
Corn.	47	24.5	31.2	29.6	29.3
Oats.	48	10.3	9.7	7.7	9.6
Wheat.	49	8.5	3.2	5.2	7.9
Soybeans for grain.	50	22.8	24.6	37.7	24.4
Other cultivated crops.	51	5.3	1.4	1.0	2.9
Legume hay and pasture.	52	15.3	11.4	8.4	11.0
Nonlegume hay and pasture.	53	13.3	18.5	10.4	14.9
Bushels per acre: Corn.	54	48.1	44.2	49.8	49.0
Oats.	55	27.4	26.6	29.4	29.4
Wheat.	56	12.1	15.6	18.0	16.5
Barley.	57	23.3	17.8	21.9	5.0
Soybeans.	58	22.2	17.8	21.9	22.7
Feed fed per acre.	59	\$ 23.85	\$ 12.10	\$ 22.81	\$ 30.76
Returns for \$100 feed fed.	60	138	161	128	135
Poultry returns per hen.	61	4.98	4.70	4.51	4.32
Number of litters farrowed.	62	21.0	14.0	16.4	21.0
Returns per litter.	63	\$193	\$194	\$176	\$173
Dairy returns per cow.	64	201	146	119	137
Horse and machinery cost per crop acre.	65	\$ 8.86	\$ 6.95	\$ 7.89	\$ 9.22
Labor cost per crop acre.	66	11.54	9.72	8.92	11.97
Land improvements cost per acre.	67	1.00	.79	.62	.78
Farm buildings cost per acre.	68	1.17	.76	1.21	1.18
Taxes per acre.	69	1.06	1.54	1.63	1.53

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—*Continued*

	Adams	Schuyler, Scott, Brown	Jersey	Greene	Pike	Madison	Randolph	St. Clair
1	\$31 311	\$29 554	\$28 772	\$31 101	\$34 866	\$20 136	\$16 895	\$23 783
2	15 927	16 226	14 956	17 138	17 019	9 840	7 909	12 426
3	838	716	705	895	900	372	477	459
4	3 634	2 733	3 365	2 959	3 307	2 681	2 155	3 026
5	265	275	255	352	359	280	325	332
6	2 842	2 289	2 392	2 785	3 855	1 712	1 509	1 524
7	1 632	1 911	1 178	1 353	3 214	577	498	802
8	194	136	35	143	222	25	47	26
9	134	99	162	118	109	167	176	235
10	3 300	2 977	2 708	2 794	3 891	2 098	1 931	2 325
11	2 545	2 192	3 016	2 564	1 990	2 384	1 868	2 628
12	\$ 8 808	\$ 8 548	\$ 8 592	\$ 9 011	\$12 690	\$ 6 498	\$ 5 496	\$ 6 567
13	1 974	1 061	1 272	1 043	2 747	662	713	523
14	547	480	2 378	1 809	2 216	2 551	1 256	1 869
15	4 911	4 590	3 455	3 435	8 336	1 710	1 414	2 067
16	114	110	8	54	174	19	63	14
17	476	375	646	408	345	690	708	931
18	353	352	385	404	431	374	394	469
19	78	1 106	77	1 284	.....	.....	509	290
20	302	451	326	531	363	445	395	383
21	53	23	45	43	86	47	44	21
22	\$ 2 633	\$ 2 605	\$ 3 033	\$ 3 025	\$ 5 132	\$ 2 513	\$ 1 669	\$ 2 252
23	225	170	181	162	184	142	129	138
24	341	184	284	206	295	244	140	200
25	.....	.....	.....	.....	2 439	461	.....	.....
26	1 061	997	1 214	1 210	924	960	797	1 066
27	515	738	879	926	734	383	355	446
28	313	383	296	383	352	182	166	243
29	178	133	179	138	204	141	82	159
30	\$ 6 175	\$ 5 943	\$ 5 559	\$ 5 986	\$ 7 566	\$ 3 985	\$ 3 827	\$ 4 315
31	1 294	1 195	1 278	1 265	1 266	1 539	1 353	1 664
32	\$ 4 881	\$ 4 748	\$ 4 281	\$ 4 721	\$ 6 300	\$ 2 446	\$ 2 474	\$ 2 651
33	15.6	16.1	14.9	15.2	18.1	12.1	14.6	11.2
34	\$ 5 647	\$ 4 174	\$ 3 738	\$ 4 002	\$ 5 459	\$ 2 349	\$ 2 518	\$ 2 389
35	4 251	5 111	4 271	4 886	5 849	3 610	2 718	2 996
36	1 571	480	903	696	1 286	1	715	850
37	35	31	26	25	27	67	54	30
38	267	276	242	269	316	183	221	210
39	\$ 32.96	\$ 31.02	\$ 35.49	\$ 33.48	\$ 40.12	\$ 35.53	\$ 24.89	\$ 31.26
40	14.69	13.79	17.81	15.94	20.21	22.16	13.69	18.64
41	\$ 18.27	\$ 17.23	\$ 17.68	\$ 17.54	\$ 19.91	\$ 13.37	\$ 11.20	\$ 12.62
42	\$ 60	\$ 59	\$ 62	\$ 64	\$ 54	\$ 54	\$ 36	\$ 59
43	70	74	70	70	63	56	40	65
44	14	10	14	11	10	15	10	14
45	117	107	119	116	110	110	77	113
46	72.6	67.8	78.6	73.6	71.8	81.3	80.2	81.9
47	27.7	34.9	32.4	39.6	34.3	25.1	15.6	20.6
48	13.4	15.7	6.5	5.5	12.6	8.5	11.2	10.8
49	6.2	6.9	10.2	7.7	4.9	18.8	21.6	19.9
50	15.5	12.4	12.3	13.2	2.7	6.6	5.2	6.6
51	2.2	3.9	5.3	6.0	5.9	6.1	12.0	9.7
52	18.5	15.3	22.0	16.2	21.3	22.7	27.1	22.7
53	16.5	10.9	11.3	11.8	18.3	12.2	7.3	9.7
54	57.6	56.5	47.6	50.1	59.8	37.4	41.1	44.6
55	38.9	30.9	22.5	27.2	29.5	22.8	29.2	25.8
56	13.0	17.7	15.6	14.6	12.3	19.1	18.4	19.9
57	.....	.....	14.5	20.7	1.4	21.3	17.1	18.3
58	24.7	23.8	20.9	22.7	21.9	15.0	13.5	21.2
59	\$ 21.93	\$ 18.18	\$ 22.69	\$ 18.35	\$ 27.47	\$ 20.59	\$ 13.74	\$ 18.40
60	142	138	147	143	140	158	147	149
61	4.49	4.69	5.03	4.77	4.55	4.87	4.67	5.26
62	23.5	24.5	22.8	22.1	44.7	12.0	8.6	13.8
63	\$194	\$184	\$172	\$160	\$189	\$172	\$183	\$188
64	109	110	185	189	91	211	152	181
65	\$ 9.03	\$ 8.06	\$ 9.72	\$ 9.38	\$ 7.74	\$ 9.95	\$ 7.82	\$ 10.14
66	12.40	12.72	14.30	13.84	12.63	15.83	13.23	16.04
67	.84	.62	.75	.60	.58	.78	.58	.66
68	1.28	.67	1.17	.77	.93	1.33	.63	.95
69	1.17	1.39	1.22	1.42	1.11	1.00	.75	1.16

(Continued)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—*Continued*

Accounting Item		Monroe	Bond	Clinton	Washing- ton
Capital investments, total.....	1	\$24 448	\$23 621	\$21 290	\$17 486
Land.....	2	14 376	12 571	10 588	9 586
Land improvements.....	3	308	729	345	404
Farm buildings.....	4	2 676	2 530	2 565	1 976
Horses.....	5	280	242	314	254
Cattle.....	6	1 088	2 057	1 779	1 124
Hogs.....	7	623	875	561	251
Sheep.....	8	32	112	23	53
Poultry.....	9	226	131	227	174
Feed and grain.....	10	2 059	2 082	2 149	1 691
Machinery and equipment.....	11	2 780	2 292	2 739	1 973
Income, net increases, total.....	12	\$ 6 104	\$ 6 477	\$ 6 835	\$ 4 825
Cattle.....	13	380	767	723	396
Dairy sales.....	14	1 335	2 192	2 579	1 497
Hogs.....	15	1 599	2 179	1 663	644
Sheep.....	16	45	53	18	26
Poultry and eggs.....	17	931	488	928	756
Farm products used in household.....	18	439	350	472	329
Feed and grain.....	19	846	.....	.....	679
AAA payment.....	20	489	398	424	473
Labor and miscellaneous.....	21	40	50	28	25
Expenses, net decreases, total.....	22	\$ 2 082	\$ 3 003	\$ 2 657	\$ 1 798
Land improvements.....	23	80	198	125	206
Farm buildings.....	24	177	164	200	150
Feed and grain.....	25	.....	798	549	.....
Machinery and equipment.....	26	927	1 031	959	846
Hired labor.....	27	537	423	497	318
Taxes.....	28	234	264	193	161
Livestock and miscellaneous.....	29	127	125	134	117
Receipts less expenses.....	30	\$ 4 022	\$ 3 474	\$ 4 178	\$ 3 027
Unpaid labor.....	31	1 568	1 360	1 360	1 478
Net farm earnings.....	32	\$ 2 454	\$ 2 114	\$ 2 818	\$ 1 549
Rate earned on investment, percent.....	33	10.0	8.9	13.2	8.9
Labor and management earnings.....	34	\$ 2 180	\$ 1 855	\$ 2 651	\$ 1 599
Excess of sales over expenses.....	35	3 063	3 699	3 792	2 519
Increase in inventory.....	36	520	-575	-86	179
Number of farms included.....	37	18	23	28	31
Size of farm, acres.....	38	242	310	179	221
Gross earnings per acre.....	39	\$ 25.19	\$ 20.93	\$ 38.27	\$ 21.83
Total expenses per acre.....	40	15.06	14.10	22.49	14.82
Net earnings per acre.....	41	\$ 10.13	\$ 6.83	\$ 15.78	\$ 7.01
Value of land per acre.....	42	\$ 59	\$ 41	\$ 59	\$ 43
Value of improved land per acre.....	43	69	45	63	46
Value of buildings per acre.....	44	11	8	14	9
Total investments per acre.....	45	101	76	119	79
Percent of land area tillable.....	46	79.5	71.2	84.5	86.0
Percent of tillable land in—					
Corn.....	47	19.9	19.0	19.1	12.5
Oats.....	48	8.0	11.7	17.7	14.7
Wheat.....	49	25.2	8.9	14.0	25.8
Soybeans for grain.....	50	3.4	14.6	8.5	6.4
Other cultivated crops.....	51	19.0	8.4	9.9	9.5
Legume hay and pasture.....	52	18.8	21.1	21.9	20.6
Nonlegume hay and pasture.....	53	5.7	16.3	8.9	10.5
Bushels per acre: Corn.....	54	32.9	28.5	34.5	21.8
Oats.....	55	15.3	17.3	27.3	24.9
Wheat.....	56	13.7	18.0	16.9	16.1
Barley.....	57	10.4	18.4	17.4	12.0
Soybeans.....	58	8.5	9.8	15.0	9.7
Feed fed per acre.....	59	\$ 12.08	\$ 13.88	\$ 21.10	\$ 9.52
Returns for \$100 feed fed.....	60	158	139	168	170
Poultry returns per hen.....	61	4.42	3.78	4.35	4.46
Number of litters farrowed.....	62	11.1	12.7	11.5	5.5
Returns per litter.....	63	\$162	\$178	\$205	\$174
Dairy returns per cow.....	64	160	191	231	172
Horse and machinery cost per crop acre.....	65	\$ 7.45	\$ 7.31	\$ 10.00	\$ 7.09
Labor cost per crop acre.....	66	13.24	10.60	14.97	12.42
Land improvements cost per acre.....	67	.33	.64	.70	.93
Farm buildings cost per acre.....	68	.73	.53	1.12	.68
Taxes per acre.....	69	.97	.85	1.08	.73

(Concluded)

TABLE 18.—SUMMARY OF BUSINESS RECORDS FROM 2,970 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1943—*Concluded*

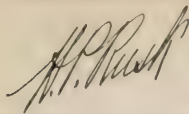
	Effingham	Fayette	Franklin, Hamilton, Jefferson, Williamson	Clark, Crawford, Jasper	Clay, Richland, Wayne, Marion	Edwards	Wabash, Lawrence, White, Gallatin, Saline	Union, Jackson, Perry, Massac, Pulaski, Alexander
1	\$16 649	\$17 320	\$16 096	\$19 072	\$15 214	\$18 336	\$23 705	\$14 987
2	7 836	8 118	7 704	9 530	7 258	9 380	12 895	6 742
3	587	672	717	607	753	576	542	1 008
4	1 984	1 927	1 592	2 072	1 737	1 710	2 566	1 816
5	239	198	243	202	216	285	218	301
6	1 432	1 493	1 283	1 508	1 450	1 339	1 644	1 063
7	400	591	632	979	474	836	780	512
8	132	226	88	35	263	101	45	60
9	261	199	164	196	185	206	150	181
10	1 772	1 806	1 758	2 013	1 190	2 221	2 657	1 630
11	2 006	2 090	1 915	1 930	1 688	1 682	2 208	1 674
12	\$ 5 533	\$ 5 251	\$ 5 210	\$ 6 339	\$ 3 916	\$ 5 944	\$ 6 810	\$ 4 843
13	587	1 053	887	945	717	963	997	497
14	1 506	783	299	550	367	281	384	987
15	972	1 667	2 180	2 769	1 247	2 590	2 378	1 277
16	117	195	93	47	147	77	31	41
17	1 089	715	662	798	719	965	562	777
18	371	378	452	398	364	366	393	404
19	476	.....	358	323	.....	298	1 576	372
20	390	418	233	460	316	376	457	431
21	25	42	46	49	39	28	32	57
22	\$ 1 721	\$ 2 173	\$ 2 156	\$ 1 896	\$ 1 569	\$ 1 766	\$ 2 142	\$ 1 806
23	224	177	309	193	248	299	234	175
24	161	200	169	166	135	139	198	160
25	.....	32	.....	.....	48	.....	.....	.....
26	773	861	997	910	627	671	936	754
27	282	599	450	305	251	381	454	447
28	179	183	161	197	183	204	250	187
29	102	121	70	125	77	72	70	83
30	\$ 3 812	\$ 3 078	\$ 3 054	\$ 4 443	\$ 2 347	\$ 4 178	\$ 4 668	\$ 3 037
31	1 406	1 202	1 112	1 300	1 099	1 129	1 152	1 123
32	\$ 2 406	\$ 1 876	\$ 1 942	\$ 3 143	\$ 1 248	\$ 3 049	\$ 3 516	\$ 1 914
33	14.4	10.8	12.1	16.5	8.2	16.6	14.8	12.8
34	\$ 2 490	\$ 1 870	\$ 1 882	\$ 3 054	\$ 1 265	\$ 2 940	\$ 3 153	\$ 1 921
35	2 954	2 509	2 029	3 298	1 672	3 666	3 340	2 361
36	487	191	573	747	311	146	935	272
37	28	18	34	43	48	45	32	22
38	215	260	287	230	264	228	250	238
39	\$ 25.78	\$ 20.24	\$ 18.18	\$ 27.51	\$ 14.80	\$ 26.02	\$ 27.21	\$ 20.31
40	14.57	13.01	11.40	13.87	10.08	12.67	13.16	12.29
41	\$ 11.21	\$ 7.23	\$ 6.78	\$ 13.64	\$ 4.72	\$ 13.35	\$ 14.05	\$ 8.02
42	\$ 37	\$ 31	\$ 27	\$ 41	\$ 27	\$ 41	\$ 52	\$ 28
43	39	35	28	45	29	43	54	32
44	9	7	6	9	7	7	10	8
45	78	67	56	83	57	80	95	63
46	83.6	73.9	86.7	82.6	82.5	83.2	87.2	75.7
47	20.9	21.1	16.2	28.9	21.3	26.7	32.0	17.2
48	10.9	8.1	5.3	7.2	8.3	7.5	3.0	6.9
49	6.9	5.8	10.7	7.2	6.6	10.7	12.0	11.0
50	17.8	19.6	6.5	13.5	7.1	8.1	11.9	6.8
51	3.8	10.4	12.9	9.4	7.1	12.0	13.8	22.7
52	18.2	16.7	27.2	17.4	19.0	21.1	17.8	25.6
53	21.5	18.3	21.2	16.4	30.6	13.9	9.5	9.8
54	35.2	30.8	31.5	41.7	20.9	37.6	37.4	36.7
55	18.9	17.2	21.5	17.4	17.4	25.9	18.9	24.6
56	13.8	18.4	18.7	10.1	13.0	18.9	18.2	17.6
57	13.3	.....	13.8	.....	12.1	14.6	14.7	16.5
58	14.0	11.7	9.6	14.9	8.8	14.9	10.5	14.4
59	\$ 12.88	\$ 11.65	\$ 9.45	\$ 16.39	\$ 8.50	\$ 15.22	\$ 12.70	\$ 9.50
60	165	155	165	144	155	149	147	172
61	5.27	4.00	5.03	4.96	4.80	4.88	4.64	4.93
62	6.8	13.6	10.2	15.8	8.0	14.8	13.5	8.0
63	\$208	\$188	\$196	\$187	\$171	\$193	\$175	\$178
64	166	160	102	135	91	106	106	134
65	\$ 7.05	\$ 7.16	\$ 7.38	\$ 7.31	\$ 5.04	\$ 6.39	\$ 6.71	\$ 8.11
66	12.28	12.45	10.25	10.99	8.68	11.43	9.81	13.76
67	1.04	.68	1.08	.84	.94	1.31	.93	.73
68	.75	.77	.59	.72	.51	.61	.79	.67
69	.83	.71	.56	.86	.69	.89	1.00	.78



Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1924-1929 = 100 by multiplying by .7151. ⁴Monthly Local Market Price Report, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ¹	Weekly wages, all manufacturing industries, unadjusted ²	Industrial production
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	124	114	116	94	110	98	9
1931.....	73	65	77	109	84	77	71	93	74	7
1932.....	65	48	52	95	60	57	60	72	51	5
1933.....	66	51	56	91	62	68	75	68	54	6
1934.....	75	65	76	99	73	73	74	79	70	7
1935.....	80	79	103	101	90	86	85	86	80	8
1936.....	81	81	107	99	104	109	110	98	93	10
1937.....	86	86	120	104	108	116	112	107	111	11
1938.....	79	69	87	98	99	107	109	101	85	8
1939.....	77	65	81	97	99	107	110	108	100	10
1940.....	78	68	86	98	107	114	116	118	114	12
1941.....	87	82	109	104	142	146	140	144	168	16
1942.....	90	105	140	118	197	200	169	187	242	19
1943.....	103	123	166	127	251	243	191	233	316	23
1943 June...	104	126	166	127	256	226	178	237	317	23
July.....	103	125	166	128	256	195	152	236	315	24
Aug.....	103	124	167	128	266	206	161	238	322	24
Sept.....	103	124	170	128	242	215	168	214	328	24
Oct.....	103	122	172	129	249	325	252	249	333	24
Nov.....	103	121	170	130	254	315	242	251	336	24
Dec.....	103	122	169	131	256	277	211	256	328	24
Jan.....	103	122	167	131	260	257	196	254	328	24
1944 Feb....	104	122	168	132	276	268	203	258	328	24
Mar.....	104	124	170	132	274	288	218	257	324	24
Apr.....	104	124	169	132	270	...	...	...	318	24
May.....	104 ¹¹	123	169	132	...	...	...	...	...	24
June.....	104 ¹¹	125	...	...	...	...	...	...	...	24

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			June 1943	Current months		
	1935-39	1942	1943		Apr.	May	June
Corn, bu.....	\$.66	\$.77	\$.98	\$1.00	\$1.08	\$ 1.08	\$1.00
Oats, bu.....	.31	.48	.66	.66	.80	.81	.8
Wheat, bu.....	.86	1.13	1.43	1.38	1.59	1.59	1.5
Barley, bu.....	.62	.74	1.00	.91	1.23	1.21	1.1
Soybeans, bu.....	.90	1.65	1.68	1.66	1.87	1.88	1.8
Hogs, cwt.....	8.52	13.37	14.07	13.80	13.30	13.00	12.9
Beef cattle, cwt.....	7.88	11.93	13.46	14.10	13.50	13.70	13.4
Lambs, cwt.....	8.36	12.28	13.57	14.20	14.30	14.30	14.0
Milk cows, head.....	58.00	102.00	129.25	136.00	133.00	129.00	129.0
Veal calves, cwt.....	8.66	13.63	14.40	14.50	14.20	14.20	14.1
Sheep, cwt.....	3.58	5.50	6.58	7.10	7.10	6.60	6.3
Butterfat, lb.....	.27	.39	.48	.48	.49	.49	.4
Milk, cwt.....	1.68	2.40	2.97	2.85	2.90	2.85	2.8
Eggs, doz.....	.19	.29	.36	.34	.26	.26	.2
Chickens, lb.....	.15	.19	.24	.25	.23	.24	.2
Wool, lb.....	.25	.40	.42	.45	.41	.41	.4
Apples, bu.....	1.08	1.53	2.49	2.75	3.60	3.60	3.0
Hay, ton.....	9.39	11.33	15.11	14.10	19.50	19.10	17.2
Potatoes, bu.....	.91	1.32	1.92	2.60	1.75	1.65	1.8

¹⁻¹²For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

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THE POSTWAR MARKET FOR ILLINOIS FARM PRODUCTS

Sales of Illinois farm products were estimated at \$1147 million in 1943—2.6 times the average of the prewar period, 1935-1939. To accomplish this increase in gross income, Illinois farmers sold 44 percent more products at 67 percent higher prices. The total sales may be slightly higher in 1944 than a year earlier because of sales of livestock made necessary by the feed situation.

The questions may be asked: (1) Can we maintain a market for an increased volume of farm products after the war? (2) At what prices? (3) What products will be in the stronger position? Correct answers to the first two of these questions would tell us what level of farm income to expect.

Wartime production in 1943 was the crest of a cycle of increased output which began at a very low level in 1935. There is evidence, however, to indicate that more than a cyclical increase is involved. The high level of production since 1939 indicates that permanent influences are in operation. The probable explanation lies in the widespread adoption of hybrid seed corn and other less conspicuous practices which make for a permanently higher level of production.

Indexes of physical volume of marketings of Illinois farm products (determined by adjusting the money value of marketings for price changes) on the 1935-1939 base and indexes of Illinois farm prices on the 1910-1914 base for the period 1933 to 1943 are shown in Table 1.

Although it will not be possible to maintain the wartime level of marketings (142.5 percent of 1935-1939 in 1942-1943) yet rather large sales are likely because farmers will continue to use hybrid corn and make use

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J. Survey

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of other improved methods. Marketings around the 1938-1940 level would not be unlikely, i.e., about 20 percent over 1935-1939. It should be noted that this is substantially above the previous peak of 107 percent reached in 1933. What sort of a market can we expect for this volume of output?

TABLE 1.—VOLUME OF MARKETINGS OF ILLINOIS FARM PRODUCTS AND FARM PRICES

Year	Marketings (1935-1939 = 100)	Prices (1910-1914 = 100)	Year	Marketings (1935-1939 = 100)	Prices (1910-1914 = 100)
1933.....	107	63	1939.....	122	91
1934.....	88	85	1940.....	127	96
1935.....	76	115	1941.....	132	122
1936.....	97	120	1942.....	141	156
1937.....	90	134	1943.....	144	185
1938.....	114	97			

It is perfectly obvious that we cannot expect a wartime market. To sell 44 percent more products at 67 percent higher prices is only possible when the government is pumping huge streams of purchasing power into the market. The government has never spent on the scale that it did in 1943-1944 in fighting a global war. It will not continue to do so when peace comes and prices of farm products will certainly decline.

The government is committed to an attempt to maintain prices of farm products at 90 percent of parity for two years after the war. With a parity index of 150 percent of 1910-1914, 85 percent of parity would require an index of Illinois farm prices to be 128 percent of 1910-1914 compared to 185 percent in 1943. The parity factor in 1943 was 164 percent but with lower prices for food, feed and seed which represent 29 percent of the weights used in this index, it may be expected to be lower. The figure of 85 percent of parity rather than 90 percent is used because price supports will never be complete and funds will likely not be available to do a complete job on all commodities. An index of 128 percent is 30 percent below the 1943 level. Even if the government is able to carry its commitment to the extent indicated (85 percent of parity), it means substantially lower prices than those now prevailing.

Can a 1938-1940 volume of production be sold at this price level? To do so would require that demand or general price level factors be about one-third stronger than in the earlier period, for an index of 128 percent is about one-third higher than the one which prevailed in the three earlier years.

Is such an increase possible? The answer depends on the level of national income—an overall measure of demand. We can largely disregard foreign markets, for very few Illinois farm products are exported

in peacetime. The growth in production of foodstuffs in foreign countries which will sell cheaper than the United States together with our 43 per cent increase in population from 1909 to 1939 largely eliminated our export of foods except in wartime. With the exception of fats and oils—by-products of meat or protein feed production—Illinois has very little farm production which we will export in peacetime.

TABLE 2.—NATIONAL INCOME OF UNITED STATES (EXCLUDING PAYMENTS BY GOVERNMENT TO FARMERS) AND PERCENTAGES THAT SALES OF ILLINOIS FARM PRODUCTS WERE OF NATIONAL INCOME, 1924-1943

Year	National income (billion)	Percent sales were of income	Year	National income (billion)	Percent sales were of income
	<i>dollars</i>	<i>perct.</i>		<i>dollars</i>	<i>perct.</i>
1924.....	70.6	.83	1934.....	49.0	.67
1925.....	75.2	.82	1935.....	55.8	.68
1926.....	80.4	.76	1936.....	65.4	.78
1927.....	78.5	.70	1937.....	71.2	.74
1928.....	81.0	.70	1938.....	66.0	.74
1929.....	86.0	.69	1939.....	70.7	.69
1930.....	75.4	.66	1940.....	77.7	.70
1931.....	59.9	.57	1941.....	94.2	.75
1932.....	43.6	.59	1942.....	119.5	.81
1933.....	41.9	.70	1943.....	147.1	.78

From 1924 to 1944 national income (paid out) went the complete range from the deep depression level of \$42 billion in 1933 to the peak wartime level of \$147 billion in 1943. During this period the cash value of marketings of Illinois farm products ranged from \$256 million in 1933 to \$1147 million in 1943. Over this 20-year period marketings of Illinois farm products ranged from .57 to .83 percent of national income, averaging .718 percent (Table 2). Highest rates (.75 percent or over) came when farm products were relatively scarce in relation to demand—in 1924, 1925, 1926, 1936, 1941, 1942 and 1943. Such years, it should be noted, included years of very high production like 1943 and years of very low production like 1936. It is demand in relation to production, not the level of production which is important. This ratio was lowest (less than 70%) in years when demand was weak in relation to supply 1929, 1930, 1931, 1932, 1934, 1935, 1939 and 1940. These, it should be noted, include the periods when the government price supports were most extensively used in Illinois, viz., commodity loans in 1933, 1939, 1940. It is obvious that when the government is supporting markets as by the corn loan in 1933, 1939 and 1940, farm income will be low in relation to national income. The markets for our products will vary roughly with national income, \$1 billion of national income being equivalent to about \$7,000,000 in farm sales of Illinois farm products.

National income will likely be higher after the war than it was before. After World War I—from 1921-1925—it averaged 90 percent higher than in 1910-1914, but prices increased more during the last war than they have in the present war. In 1937-1939 national income averaged about \$70 billion. If prices and production considered together average 50 percent higher than before the war, then national income would be 50 percent higher or \$105 billion. In view of the probability of a somewhat higher price level and the increased production that will flow from the increased savings and demands for many types of goods—automobiles, houses, etc.—it is reasonable to expect that national income may be 50 percent higher or in the \$100-\$110 billion range. A national income of \$100 billion would mean a sale value of Illinois farm products of about \$725 million (a range of \$670 to \$780 million) based on 1933-1943 relationships.

If Illinois farm production level goes back to the 1938-1940 level, 121 percent of 1935-1939, and we have marketings of \$725 million, the level of prices would be 44 percent higher than in the earlier period or about 150 percent of 1910-1914. That would be about 90 percent of 1943 parity. With marketings at the lower level of the 1933-1943 range or \$670 million and production at the 1938-1940 level, prices would average about 33 percent higher than in 1935-1939, or 140 percent of 1910-1914.

Should national income go back to the prewar level of \$70 billion, in order to maintain a price level of 85 percent of parity or 128 percent of 1910-1914, production volume would have to be forced down below the 1935-1939 production level and perhaps to one-fourth below the 1938-1940 level. To accomplish this would be a very difficult task. It is hoped that it will not have to be attempted. The way to avoid it is to have a high national income to provide a good demand.

Summary. To summarize, the markets for Illinois farm products will tend to vary with national income. With a national income of \$100-110 billion we can sell a volume of farm products equal to the high-level production of 1938-1940 at prices which average 90 percent of parity or above, provided 1933-1943 relationships between national and farm income continue. We shall have to retreat from some of the lines in which we greatly expanded production during the war to meet military and export demands and to replace cut-off imports. Specifically this means less soybeans, corn, hogs, and poultry. With a national income of the above level, we should be able to avoid arbitrary price supports on individual products which might hamper the adjustments necessary to convert our basic raw materials (grains) into more salable products. The above observations do not apply to wheat or cotton where the loss of export

markets has created a very depressing situation. But with the above mentioned level of national income there will be large markets for animal foodstuffs. The markets for feed grains may be better than in the period following World War I because certain basic factors which reduced the markets for feed grain, particularly the shift from mechanical to horsepower, have largely run their course. Farm prices and gross farm income cannot be expected to continue at wartime levels but with a national income of \$100 billion which is 50 percent above prewar, they can be expected to be substantially higher than in the prewar years. Net incomes may be relatively lower than gross because of the higher cost levels resulting from higher levels of wages and prices of industrial goods—the usual aftermath of a war.

L. J. NORTON

CROP COSTS IN ILLINOIS IN 1943

For 24 years, a group of farmers in Champaign and Piatt counties in east-central Illinois has kept records of the cost of producing farm crops. In 1943 the farmers included in this study had farms which were about 95 acres larger than those operated by the average farmer in the area, secured somewhat higher crop yields, and had better managed farms than did the average farmers in the two counties. As a result, they had somewhat lower costs of crop production than did their neighbors.

Costs as used here include a charge for the labor of the operator and members of his family and for seed and other non-cash items just as if they had been hired or purchased by the farmer, and include a rental charge for land equal to the taxes paid on the land, and an interest charge of five percent of the current land value.

Corn. In 1943 in Champaign and Piatt counties, operating expenses for producing an acre of corn were \$13.78 after credit was given for stalk pasture. Operating expenses included all production costs except the interest on the investment in land. When land charges were added, the net cost of producing an acre of corn was \$20.56. In 1943 on farms included in the study, the yield per acre was 66.5 bushels, and the average cost per bushel was 30.9 cents (Table 1). These figures may be compared with those for 1935-1939 when the yield per acre was 54.8 bushels and the average cost per bushel was 33.7 cents.

Oats. In 1943 the oat crop was combined on 73 percent of the oat-land. The operating expenses of producing an acre of combined oats were \$7.13. When land charges were added, the net cost of producing an acre of combined oats was \$13.94 and of producing an acre of threshed oats

TABLE 1.—THE COST OF PRODUCING CROPS^a IN 1943, CHAMPAIGN AND PIATT COUNTIES

Item	Corn	Combined oats	Threshed oats	Soybeans	Alfalfa hay	Clover hay	Soybean hay
Growing cost per acre							
Man labor.....	\$ 1.78	\$.50	\$.75	\$ 1.28	\$.....	\$.....	\$ 1.22
Power, truck, and machinery	3.07	.97	1.29	1.99	.....	.....	1.86
Seed.....	1.10	2.09	1.90	3.34	.83	.97	3.15
Fertilizer.....	1.82	1.10	1.52	.89	.57	.39	1.21
Other expenses.....	1.72	.76	1.27	1.24	2.83	1.21	3.59
Total growing costs.....	\$ 9.49	\$ 5.42	\$ 6.73	\$ 8.74	\$.....	\$.....	\$11.03
Harvesting costs							
Man labor.....	\$ 1.24	\$.76	\$ 2.62	\$.62	\$ 5.91	\$ 2.54	\$ 6.16
Power, truck, and machinery	1.32	.58	1.63	.48	5.13	2.31	5.14
Combine.....	.....	1.17	.....	1.15	.....	.20	.....
Picker.....	1.03	.....	.....	.....	.....	.....	.....
Pickup baler.....	.....	.....	.....	.....	.....	.....	.....
Threshing and twine.....	.....	.....	1.11	.....	2.45	1.18	.....
Total harvesting cost.....	\$ 3.59	\$ 2.51	\$ 5.36	\$2.25	\$.....	\$.....	\$11.30
Cost of growing and harvesting	\$13.08	\$ 7.93	\$12.09	\$10.99	\$17.72	\$ 8.80	\$22.33
Taxes.....	1.38	1.39	1.52	1.36	1.46	1.36	1.41
Interest on land.....	6.78	6.81	6.62	6.74	6.55	7.12	6.42
Total cost per acre.....	\$21.24	\$16.13	\$20.23	\$19.09	\$25.73	\$17.28	\$30.16
Net cost per acre.....	\$20.56	\$13.94	\$18.22	\$18.84	\$25.73	\$15.31	\$30.16
Total income per acre....	\$65.20	\$21.56	\$23.75	\$45.53	\$40.77	\$16.75	\$22.17
Yield per acre, bushels on tons	66.5	32.7	36.0	25.3	2.05	.96	1.82
Net cost per bushel or ton ^b ...	\$.309	\$.427	\$.506	\$.746	\$12.54	\$15.91	\$16.60

^aNot enough wheat was grown on the cost farms to give reliable average cost figures.

^bAfter credit is allowed for by-products such as straw and pasture and seed obtained from clover.

was \$18.22. The yield of the combined oats per acre was 32.7 bushels, and the average cost per bushel was 43 cents. The yield of the threshed oats per acre was 36 bushels, or 3.3 bushels above that of combined oats. This advantage in yield of threshed oats over combined oats was not enough to offset the increase in acre costs so the production cost of threshed oats was 8 cents above that for combined oats, or 51 cents a bushel.

Soybeans. The operating expenses for producing an acre of grain beans were \$12.10. When land charges were added, the net cost of producing an acre of grain beans was \$18.84. The yield per acre was 25.3 bushels, and the average cost per bushel was 75 cents.

Alfalfa hay. In 1943 the cost of the alfalfa crop per acre, including growing, harvesting and baling (where field baling was done), was \$25.73 when taxes and interest on land values were included. The average yield per acre was 2.05 tons in 1943 as compared with 2.76 tons an acre in the previous five years. The average cost of producing a ton of alfalfa hay in 1943 was \$12.54. The pickup baler was used in the field to bale 63 percent of the alfalfa hay.

Clover hay. The net cost of producing, harvesting and baling (where field baling was done) an acre of clover hay on farms in east-central Illi-

nois in 1943 was \$15.31; this amount included a land charge of \$7.12. The yield per acre was .96 ton; the average cost per ton was \$15.91. To obtain the net cost of clover hay per acre, a credit of \$1.53 was deducted from the gross cost for the value of seed harvested in addition to \$.44 for pasture. The pickup baler was used in the field to bale 92 percent of the clover hay on the farms in the study.

Soybean hay. Only 22 percent of the farmers cut more than 2 or 3 mower widths around their soybean grain fields and used these cuttings for hay. Therefore, in considering the cost of producing soybeans, some credit should be allowed for the fact that cutting borders of soybean fields is as much a method of opening up grain fields for the combine as a method of producing hay. No such credit was given the soybean hay crop as it is not known how much should be allowed. In 1943 the operating expenses for growing and harvesting an acre of soybean hay were \$22.33. When land charges were added, the cost of producing an acre of soybean hay was \$30.16. The yield per acre was 1.82 tons, and the average cost per ton was \$16.60.

Cost per acre and per bushel. Yields per acre had an important influence on the production costs per bushel or ton of crops grown in 1943. There is every indication that the cost of producing field crops will increase because farmers have been robbing their soils of fertility by growing such large acreages of soil-depleting grain crops. Corn and soybeans are the most profitable staple grain crops in the central corn belt, but the farmer must reckon the returns for the rotation as a whole, and the more profitable crops must carry the less profitable ones necessary to a good rotation. Corn and soybeans, the main cash crops in the central corn belt must help carry the oats, barley, wheat crops and the legume crops grown for soil improvement.

R. H. WILCOX

THE FARM LAND PRICE SITUATION

Advances in land prices. Dangers of a farm land boom may lie immediately ahead. Many who have studied the situation agree that land prices have advanced as far as long-time farm earnings will justify in most parts of the Midwest. Illinois affords no exception to this statement. A few communities have not experienced unwarranted advance in the price of farm land, but they are the exception rather than the rule.

Conditions which have contributed to the advance in land prices include, among others, the largest cash reserve ever in the hands of Illinois farmers. This has resulted from large yields; a large proportion of farm

land in high-profit crops, good prices for farm products; and inability to make normal replacements of improvements and equipment.

The immediate situation has many similarities to that of 1918. The advance in land prices over the past four years has been similar on a percentage basis to the advance during the first World War. The average estimated selling price of land for the country on July 1, 1944 was 42 percent above the 1935-1939 average, while on March 1, 1919, the estimated sale price of land was 40 percent above the 1912-1914 average.

By 1920, land prices in the United States had advanced to about 30 percent above the 1918 peak. This does not necessarily indicate that the same thing will happen again. Higher income tax rates, the unfavorable crop season in many parts of the corn belt in 1944, the large supplies of food now in the hands of the armed services and the possible early slackening of industrial employment are factors which may hold in check further rapid advances in the price of farm land. In some states the rate of advance has been much more rapid than for the country as a whole. It is significant that on July 1, 1944, the estimated value of land was above the 1917 level in almost two-thirds of the states, and the volume of transfers also was at a record high. Another indication of a boom is that the resale of farms which had been purchased within the past two years has been rapidly increasing, averaging more than ten percent of all sales.

Farms are being sold in increasing numbers on a basis that creates heavy debt. In the early part of the rise, a large proportion of the sales of land were for cash settlement, but there is indication of heavier competition for land, and small down-payments, frequently amounting to less than 25 percent of the purchase price. It is this situation which should cause alarm for all who are interested in sound agriculture.

Farm mortgage foreclosures in the United States averaged less than four for 1,000 farms in 1920, but increased to 17 per 1,000 farms in 1924 and reached a high of 39 in the depression of 1932. Within only four years after 1920 distressed sales of farms had become four times as numerous. Many people made the mistake of borrowing too much and paying too high a price for land. Debts contracted while farm incomes were temporarily high during the first World War and its immediate aftermath up to 1920 caused much of the financial distress of farmers following 1920.

Factors affecting land prices. Conditions which need to be considered in determining of prices to pay for land include the probability of less favorable seasons in the years immediately ahead, need of rebuilding soil resources, the need for replacing farm improvements and equipment, and the prospect of lower prices for farm products in the postwar period. Experiences following the first World War and extending over

the past twenty years should serve as a warning to prospective buyers that for the good of Midwest agriculture the prices of land should not be permitted to go above present levels in most areas.

Among factors which have been influencing some people to take chances on further advances in land prices are: (1) farm income above prewar levels, (2) large and growing volume of funds in the hands of prospective buyers, (3) the return of servicemen and war workers seeking farms, (4) farmers expanding their acreage, (5) the removal of many of the current obstacles to production such as shortage of equipment, and (6) keen competition among lenders to make loans. Undoubtedly this is the most favorable time in the past 25 years for those who wish to sell farm property, but if prospective buyers are fully aware of the situation, they will be cautious in paying inflated prices for land. In fact in much of Illinois, prices are far above those which are justified by farm earnings over the past twenty years.

The chief factors which might justify present or higher prices of farm land after the war would be: (1) continued high prices for farm products, (2) large net returns above cost of operating farms, and (3) lower interest rates. It does not seem at all likely that present prices for farm products can continue in the postwar period while costs of production are apt to remain at a high level for a while after other prices fall. Some people are inclined to overestimate the influence of lower interest rates. With advances in the prices of farm land, resulting from lower interest rates, the annual cost of interest on the larger debt may be as large as with a higher interest rate on a smaller debt. In addition the higher price of land resulting from lower interest rates results in a large debt to be paid. Any gain, therefore, from lower interest rates is likely to be offset by the higher amount paid for the land.

There is little basis to expect land prices in the long run to remain as high as those prevailing in the summer of 1944. Consequences of a serious deflation of farm land values following this war may vary in certain respects from those following 1920, but the general pattern is likely to be similar.

Controlling inflation. Is it possible to ward off a land boom? To do so it is necessary, first of all, to control general inflation. Methods of preventing general inflation include the continued taxation of current income of all groups according to their ability to pay, increasing the borrowing of current savings of individuals by the government through the sale of bonds, and increased resistance of government to pressures of special interest groups to secure further increases in commodity prices and wage rates. These measures would reduce the danger of a widespread land boom, but would not eliminate them.

Voluntary control of land inflation. Much can be done to control inflation on a voluntary basis by prospective buyers and sellers of farm land.

(1) Buyers should not incur more farm land indebtedness than is justified by the long time earnings from the land. Present farm prices are the result of the war and cannot be expected to continue. Wartime incomes have enabled many debtors to reduce their debts, but this advantage will not be available to those purchasers who buy just before a drop in earnings.

(2) Where land prices have risen unduly, farmers will generally be better off in the long run to postpone purchase of land and to use their wartime income to retire debts, purchase war bonds, and build up cash reserves.

(3) Those who own land can use available funds now, or hold them in reserve, to improve their land and to provide needed farm and home improvements and equipment. Such action would help place agriculture in a stronger financial position to meet less prosperous times.

(4) Tenants may find it more profitable to continue as tenants than to buy land at inflated prices.

(5) Owner farm operators who need to expand their acreage to secure an economic size of unit should give consideration to leasing land from others, rather than buying land while prices are inflated.

(6) Non-farmers should give serious consideration to alternative investments, particularly to purchase of war bonds. Poorly managed farm properties frequently produce low income, and are likely to deteriorate because of depletion of the soil, erosion, weed infestation, and other causes.

(7) Purchasers of land at war prices should make as heavy cash payments on it as is consistent with adequate funds for operating it, should use high war incomes to reduce debt, and should avoid heavy mortgages based on inflated values, or short-term mortgages, or inflexible mortgage provisions.

(8) Prospective farm purchasers who are not well informed in regard to the value of land should avail themselves of competent land appraisal service before purchasing. Some studies indicate that city buyers pay from 15 to 20 percent more for land than farmers located in the same areas.

(9) Buyers who assume heavy indebtedness incur risks not incurred by those who are able to pay cash.

(10) Farmers wanting to retire and others interested in disposing of farm land should consider the advantages of sale in the present market. Sellers of farm land should require substantial down payments in order that those who buy from them may be able to carry on with the payments if farm product prices fall, and thus avoid the risk of having to repossess the property.

(11) Farm owners expecting to sell and repurchase should refuse seemingly attractive offers unless they have already taken option on equally good land at cheaper prices elsewhere. During the last boom many farmers sold with the aim of repurchasing but frequently paid a much higher price for other land, or purchased land of lower quality at the same price, or even bought back their original farms at advanced prices.

There are a number of suggestions which should be observed by lenders. (1) All farm mortgage loans should be based upon long-term earning-capacity values. This requires a sound appraisal system and the refusal to increase loans on the basis of temporary wartime prices for agricultural products. (2) Competition for loans on the part of lenders should be on the basis of services provided rather than in increasing the size of the loan offered the borrower. These services include amortization and prepayment privileges on loans, long-term loans, attractive interest rates and flexible principal payment provisions. (3) Corporate agencies having extensive land holding should avoid contributing to higher land prices by continually advancing the asked prices above the levels justified by the long-time productive value of the property.

If buyers, sellers, and lenders on farm land do not take it upon themselves to avoid seriously inflated land prices and land prices continue upward as they have over the past three or four years it will become desirable that action be taken to curb the advance in land prices. This will be in the interest of avoiding the types of debt distress which occurred after the first World War and especially during the early 30's. Those experiences are not so long past. Recalling their lessons may help thousands of farmers and prospective land buyers to avoid mistakes such as have caused much distress since the first World War.

H. C. M. CASE and C. L. STEWART

Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1924-1929 = 100 by multiplying by .7151. ⁴Monthly Local Market Price Report, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period.....	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	187	242	199
1943.....	103	123	166	127	251	243	191	233	316	239
1943 July.....	103	125	166	128	256	195	152	236	315	240
Aug.....	103	124	167	128	266	206	161	238	322	242
Sept.....	103	124	170	128	242	215	168	214	328	244
Oct.....	103	122	172	129	249	325	252	249	333	247
Nov.....	103	121	170	130	254	315	242	251	336	247
Dec.....	103	122	169	130	256	277	213	256	328	241
1944 Jan.....	103	122	167	131	260	257	196	254	328	243
Feb.....	104	122	168	132	276	268	203	258	328	244
Mar.....	104	124	170	132	271	288	218	257	324	242
Apr.....	104	123	169	132	270	234	177	258	318	239
May.....	104	123	169	132	276	256	194	260	318	237
June.....	104 ¹¹	125	166	133	276	230	173	262	318	235
July.....	104 ¹¹	124	166	133	...	...	...	...	...	233 ¹²

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			August 1943	Current months		
	1935-39	1942	1943		June	July	Aug.
Corn, bu.....	\$.66	\$.77	\$.98	\$1.02	\$1.08	\$1.09	\$1.09
Oats, bu.....	.31	.48	.66	.67	.80	.74	.71
Wheat, bu.....	.86	1.13	1.43	1.47	1.55	1.47	1.45
Barley, bu.....	.62	.74	1.00	1.04	1.18	1.13	1.13
Soybeans, bu.....	.90	1.65	1.68	1.66	1.88	1.88	1.88
Hogs, cwt.....	8.52	13.37	14.07	14.10	12.90	13.10	13.80
Beef cattle, cwt.....	7.88	11.93	13.46	13.50	13.40	13.40	13.60
Lambs, cwt.....	8.36	12.28	13.57	12.90	14.00	13.40	12.80
Milk cows, head.....	58.00	102.00	129.25	128.00	129.00	124.00	121.00
Veal calves, cwt.....	8.66	13.63	14.40	14.60	14.10	13.50	13.50
Sheep, cwt.....	3.58	5.50	6.58	6.70	6.30	5.20	4.50
Butterfat, lb.....	.27	.39	.49	.47	.48	.48	.48
Milk, cwt.....	1.68	2.40	2.97	3.00	2.85	2.90	3.00
Eggs, doz.....	.19	.29	.36	.35	.27	.25	.30
Chickens, lb.....	.15	.19	.24	.26	.23	.25	.25
Wool, lb.....	.25	.40	.42	.43	.42	.44	.42
Apples, bu.....	1.08	1.53	2.49	2.50	3.00	3.10	2.50
Hay, ton.....	9.39	11.33	15.11	14.50	17.20	14.50	15.70
Potatoes, bu.....	.91	1.32	1.92	2.00	1.85	1.95	2.10

¹⁻¹²For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture University of Illinois Department of Agricultural Economics

G. L. Jordan, Editor October, 1944 Number 113

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SOME BASIC CHANGES IN FARM PRODUCTION

What items will find most favorable markets in the postwar period? In considering this it will be well to review long-time trends, for these trends will likely point the direction of future developments. The trends in output of important classes of farm products for the United States as a whole are shown in Table 1.

Looking first at the changes between 1910-1914 and 1938-1940 we note that Illinois agriculture was hampered in this long period by slow growth of sales of its major crop, feed grains, and by relatively slow growth of its major livestock enterprise, meat animals. Peacetime exports of food-stuffs largely disappeared and the country converted from horse to mechanical power for much of its farm work and most of its local hauling and transportation, thereby reducing the markets for feed grains and hay. Also in this period there was a decided decline in the per capita consumption of wheat for food and an absolute decline in the use of corn for food. There also occurred in the latter part of this period a marked increase in available supplies of high protein oil meals which economized on the use of feed grains and hay in livestock production. All of these changes were unfavorable to markets for the basic feed crops of Illinois. They largely explain the larger increase in livestock output than in crop sales. Agriculture adjusted to the changes in export position and in sources of farm power by increasing livestock products for domestic consumption. The very large increase in sales of oil seeds was of course a

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

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TABLE 1.—CHANGES IN UNITED STATES PRODUCTION FOR SALE OR HOME USE OF SPECIFIED CLASSES OF FARM PRODUCTS BETWEEN SELECTED PERIODS

Class	1938-1940 as percent of 1910-1914	1942-1943 as percent of 1938-1940
Oil crops.....	326	240
Truck crops.....	320	113
Fruit and nuts.....	166	102
Tobacco.....	150	90
Sugar crops.....	146	88
Vegetables (staple)*.....	119	114
Food grains.....	109	111
Feed grains and hay.....	104	113
Cotton and cottonseed.....	85	102
All crops.....	121	111
Dairy products.....	156	110
Poultry and products.....	142	133
Meat animals.....	121	129
All livestock products.....	135	124
All farm products.....	128	119

*Includes only potatoes, sweet potatoes and dry beans.

major gain to Illinois agriculture, for soybean production, centering in Illinois, was a major factor in this expansion.

At the same time that markets for cereal crops were in general weak, our population increased by 43 percent from 1909 to 1939. It also became more highly concentrated in urban centers. Shifts in food habits tended to reduce or hold down consumption of the staples—bread, potatoes and meat—and to increase consumption of truck crops, vegetable oils, fruits, nuts, sugar, poultry, eggs and dairy products as well as of tobacco. Note that sales of fruits and nuts were 66 percent larger in 1938-1940 than in 1910-1914 while sales of staple vegetables were only 19 percent larger and those of food grains only 9 percent larger.

So far as bread grains and staple vegetables are concerned these trends will likely continue and these products will not find expanding markets. The classes of crops which have shown long-time growth will be likely to continue to expand. Feed grains and hay may show more vitality than in the 1910-1940 period. They no longer have to face the effect of the shift from horse to mechanical power or the loss of peacetime exports. These adjustments have already been made. If the dairy and poultry industries continue to grow, particularly in deficit feed areas, the demand for feed grains, and to a lesser extent for hay, will be increased. Moreover corn, when processed, yields a form of sugar which is finding increasing uses. Likewise meat animal production may show more growth than in the 1910-1940 period, chiefly because of greater potential supplies of feed grains and hay consequent on technological changes in their produc-

tion. The wartime developments show what can be done in meat production when adequate demands exist. It is to be hoped that production of meat animals will not be hampered in the years ahead by programs which attempt to maintain prices on grains above the level at which they will be converted into salable products—meat, milk and eggs.

We will have to retreat from some of our wartime production levels. These are shown by the 1942-1943 to 1938-1940 ratios in Table 1. Already in 1944 we are reducing production of oil crops, potatoes, poultry, eggs and meat animals (hogs). It is interesting to note that our wartime expansion in crop production amounted to only 11 percent. Increases in oil crops, vegetables and grains were offset by declines in other directions. Our war expansion consisted mainly of increases in poultry products, meat animals and oil crops with smaller increases in vegetables, grains and dairy products. We did not achieve "more guns and butter" but we did achieve "more guns and meat and eggs." This was accomplished by the use of reserves of feed grains, the diversion of large quantities of wheat to feed, an increased use of oil seed feeds, and maintained feed crop productions.

L. J. NORTON

THE COST OF PRODUCING CASTOR BEANS IN ILLINOIS IN 1943

The interest in castor bean production shown by Illinois farmers in 1943 was caused by a rapidly expanded need for the oil from the bean in prosecuting the war. Supplies from India and Brazil had virtually been cut off due to lack of shipping. The oil was needed in the operation of high altitude airplanes, recoil mechanisms, hydraulic brakes, and for various uses in factories making military equipment.

In order to obtain a supply of domestically-produced castor beans as a source of oil, the Commodity Credit Corporation in 1943 contracted with Illinois farmers to pay them a guaranteed price for beans over an 18-month period.

Castor beans were grown on a commercial basis in 1943 in five Illinois counties. The counties and the approximate acreage grown in each were Mason, 640; Cass, 139; Crawford, 98; Lawrence, 65; and Clark, 22.

Because the castor bean was a new crop a study of its production requirements and costs was made in Mason and Cass counties. Cooperating farmers were furnished cost forms which they filled out during the crop season under the direction of a field man from the University of Illinois. Thirty-four growers completed records in enough detail and accuracy to be usable; they planted 185 acres of castor beans or an average of 5.4 acres per farm.

The cultural methods used in growing castor beans were the same as those commonly used in corn production up to time of harvest. The seed was planted with a corn planter fitted out with special castor bean plates. An average of 8.5 pounds of seed was used per acre. The bean grows in pods closely clustered about spikes which vary up to a foot or more in length, depending upon the fertility of the soil. The spikes are dispersed along the plant stalk and at the top of the stalk. Nearly all of the beans are harvested by hand because bean plants are not uniform in height, and because the spikes on an individual plant do not mature evenly. The spikes of pods are cut or broken from the stalk and carried to the drying floor where they are allowed to dry before delivery to the huller.

Growing costs. The cost of growing an acre of castor beans up to harvest time was \$10.37 (Table 1). It required 6.3 man hours, 5.8 horse hours and 2.8 tractor hours to prepare the seed bed, plant, and cultivate an acre of castor beans. During the growing season monthly wages paid to hired men plus the perquisites in the form of room and board amounted to \$.37 an hour of work performed. Horse labor was charged at \$.25 an hour. The hourly rates for tractors of different sizes and makes used in the production of castor beans were based on those of tractors on farms in east central Illinois where complete machinery cost records had been kept in 1943. The cost of operating all tractors used in producing castor beans was \$.55 an hour.

TABLE 1.—THE COST OF PRODUCING CASTOR BEANS ON 34 FARMS
IN MASON AND CASS COUNTIES, ILLINOIS, 1943

Items		Items	
Acres of castor beans.....	5.4	Cost items per acre (continued)	
Yield per acre (pounds).....	602.0	Harvesting cost	
Labor and power per acre		Man labor.....	\$ 5.10
Man hours.....	20.6	Horse labor.....	1.14
Horse hours.....	10.3	Tractor use.....	.15
Tractor hours.....	3.1	Truck and auto use.....	.02
Truck miles.....	4.8	Farm machinery.....	.06
Auto miles.....	4.4	Sacks.....	.13
Pounds of seed.....	8.5	Total harvesting cost.....	\$ 6.60
Cost items per acre		Delivering cost	
Growing cost		Custom delivering.....	\$.28
Man labor.....	\$ 2.33	Man labor.....	.26
Tractor use.....	1.54	Truck use.....	.18
Horse use.....	1.44	Tractor use.....	.01
Auto use.....	.18	Auto use.....	.04
Farm machinery.....	.84	Wagons and trailers.....	.02
Seed.....	.34	Total delivering cost.....	\$.79
Manure and fertilizer.....	.60	Cost of growing, harvesting, and	
General overhead expense.....	3.10	delivering.....	\$17.76
Total growing cost.....	\$10.37	Taxes.....	.70
		Interest on land at 5%.....	1.93
		Total cost.....	\$20.39
		Trips for instruction.....	.57
		Grand total cost.....	\$20.96
		Income per acre.....	\$34.50
		Net profit per acre.....	\$13.54

Seed was obtained through the Commodity Credit Corporation. The charge for seed was based on the gross value of beans produced and delivered. Two growers may have each obtained and planted 40 pounds of seed; but if one grower produced a high yield of beans that hulled 70 percent his seed charge would be higher than that of the other grower if his yield was low or the hulling percent of the beans was low.

The only fertilizer materials used on this crop were barnyard manure and limestone; barnyard manure was used by eight and limestone by five growers. The charge made for manure spread on castor bean land was \$.75 a spreader load plus the grower's cost of applying it. The benefits derived from manure were extended over a four-year period in declining amounts. Ten percent of the cost of limestone applied within ten years before 1943 was charged to the castor bean crop.

A cost item of general overhead expense was included, because on every farm there are some expenses such as upkeep of line fences, cost of cutting weeds along roads and fence rows, farm bureau dues, telephone bills and other costs that are difficult, if not impossible, to prorate to the branch of the farm business responsible for the expense. In farm accounting the usual method of distributing overhead expense is to prorate it among productive enterprises on the basis of man hours spent on each.

Harvesting cost. Most of the beans were harvested before frost and yet 55 percent of the growers who kept cost records harvested their whole crop the first time over the field. The growers who went over their bean fields twice in harvesting took 49 percent of the beans the first time over. None of the cost cooperators went over the bean field three times in harvesting. The total hours of human labor (both men and women) used in harvesting an acre was 13.3, horse labor 4.5 and tractor .3 of an hour. It cost \$6.60 to harvest an acre of castor beans yielding 602 pounds of beans in the hull.

Delivering cost. About 38 percent of the castor beans were delivered from the farm to the huller in custom trucks; the remainder was delivered by the growers in their own trucks and automobiles. The total cost of delivering an acre of beans was \$.79. Hulling machines were near at hand so that no grower had a long haul in making delivery.

Land charge. The land charge totaled \$2.63 an acre. Taxes were \$.70, and interest at 5 percent of an average valuation slightly more than \$38 an acre made up the remaining \$1.93.

Human Labor and Power Major Items of Cost

In the expenses for growing, harvesting, and delivering of \$17.76 per acre (Table 1) the cost of human labor was \$7.69 or 43.3 percent; power

(including horses, tractors, trucks and automobiles) was 26.5 percent. The third item of cost in order of importance was the general overhead expense.

The Cost and Price of 100 Pounds of Beans in the Hull

It cost \$20.96 an acre to grow, harvest and deliver an acre of castor beans producing 602 pounds of hull beans, making 100 pounds of hull beans cost \$3.48. The Commodity Credit Corporation guaranteed the grower \$6.00 a hundred pounds for beans in the hull that hulled out 70 percent. The price of hull beans varied according to the hulling percent. Beans that hulled out only 40 percent brought \$.0342 a pound.

Hull beans from the cooperating farms sold for an average price of \$5.73 a hundred pounds, or \$34.50 an acre.

It would seem that there is a place for castor beans on the light and sandy soils in Illinois if the price for beans in the hull is not below three cents a pound. Castor beans from Brazil and India generally sell in the United States at so low a price that Illinois farmers who grew them for the first time in 1943 question whether they could afford to produce the crop under normal conditions. The castor bean program of the federal government was not continued in Illinois in 1944. R. H. WILCOX

RELATION OF CREAM SALES TO NUMBER OF COWS MILKED IN ILLINOIS

Twenty-five percent of the milk produced on Illinois farms in 1939 was sold as cream and 45 percent of the farms on which cows were milked sold cream. During the war period an increasing share of our production of milk has been utilized in fluid forms and in expanding the manufacture of evaporated milk and cheese, so that in 1943 only 20 percent of the milk produced was marketed as cream. Certain data regarding cream sales in Illinois counties are presented which may be useful to those concerned with the future development of the creamery industry.

Total cream sales. Census data show that nearly 43 million pounds of butterfat were sold from Illinois farms in the form of cream in 1939. Sales of butterfat from each of Jo Daviess, Iroquois, Henry, Livingston, McLean and Hancock counties exceeded a million pounds and were over three-fourths of a million pounds in each of Knox, Bureau, Shelby, Fulton, Adams, LaSalle, Champaign, Vermilion and McDonough counties. The pounds of butterfat sold as cream per 100 acres of land area are shown in Figure 1. Jo Daviess county, with 344 pounds of butterfat sold per 100 acres, was the leading county in density of cream sales. Henry

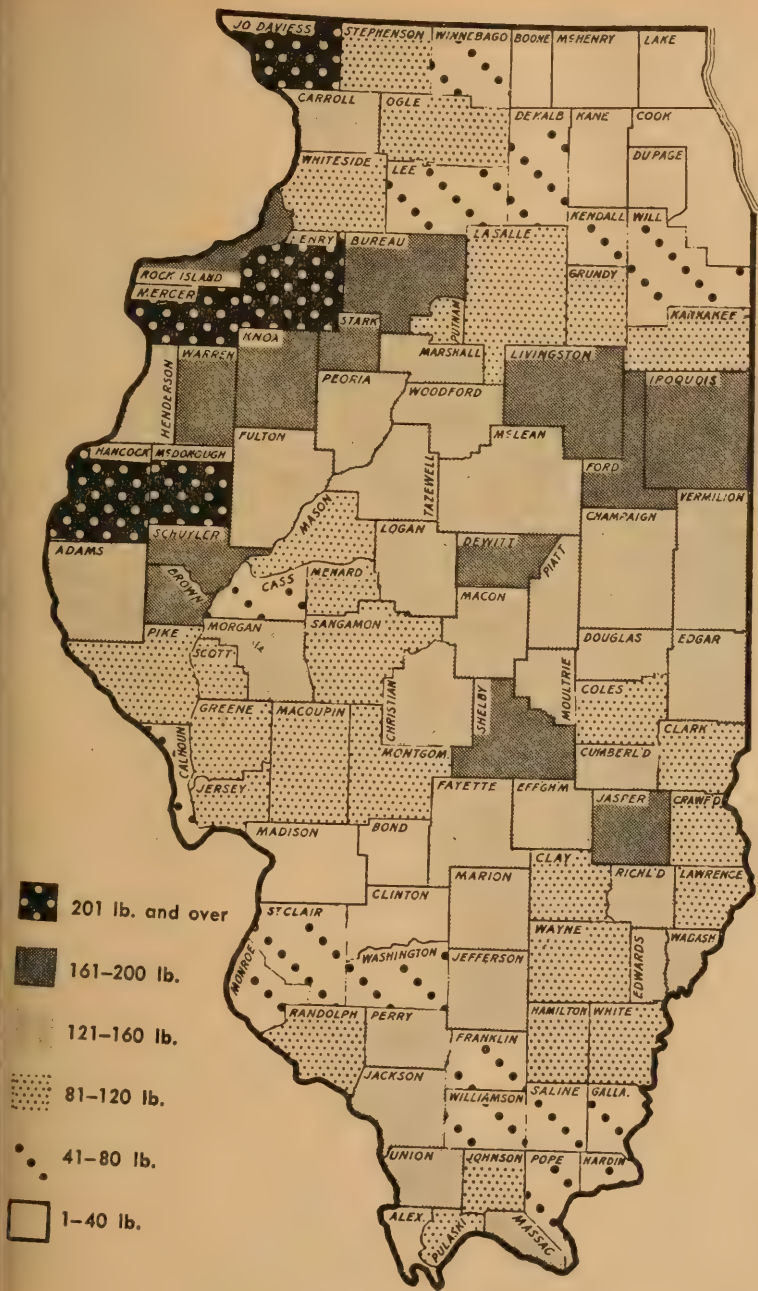


FIG. 1.—POUNDS OF BUTTERFAT SOLD AS CREAM PER 100 ACRES OF LAND AREA, ILLINOIS, 1939

county ranked second with 220 pounds. For the entire state, 120 pounds of butterfat were sold per 100 acres of land area. The density of cream sales was heaviest in the Western area of the state north of Pike county, with several east central counties not far behind. Jackson, Jefferson and Perry counties ranked highest in southern Illinois.

Sales of cream were smallest in the important Chicago and St. Louis fluid milksheds. An area made up of counties in the most southeastern part of Illinois was next smallest, followed by areas in which large manufacturing plants receiving whole milk are located.

A wide variation exists among different areas in the average pounds of butterfat sold annually per farm selling cream. In the southeastern area of the state the average sales per farm in 1939 ranged from only 209 pounds in Hamilton county to 385 pounds in Marion county. Sales throughout the southwestern, western and south central counties averaged less than 600 pounds per farm. Only in the extreme northern tier of counties did the average pounds sold exceed 1,000 pounds, the highest being Jo Daviess county with 1,532 pounds.

One- and two-cow herds. One-sixth of the farms milking only one cow and one-half of the farms milking two cows sold cream. Approximately one-third of the one-cow herds and up to 75 percent of the two-cow herds in southeastern Illinois sold cream; about one-fifth of the one-cow herds in western Illinois and over half the farms all the way across central Illinois milking two cows marketed cream. In northern Illinois and in the St. Louis milkshed a much smaller proportion of these farms sold cream.

One-cow farms marketed just 1.3 percent, and two-cow farms seven percent, of the total butterfat sold as cream (Table 1). In northern Illinois these farms marketed less than the state average, but one-cow

TABLE 1.—RELATION OF NUMBER OF COWS MILKED TO MILK PRODUCTION AND CREAM SALES, ILLINOIS, 1939

Number of cows milked	Percent of all farms which reported cows milked	Percent of total milk produced	Percent of farms which sold cream	Percent of total pounds of butterfat sold as cream
1.....	17.0	2.6	17.2	1.3
2.....	16.5	4.8	50.0	7.0
3.....	11.9	5.3	64.4	10.1
4.....	11.6	7.1	66.5	14.2
5 to 9.....	29.4	31.9	53.7	47.5
10 to 14.....	8.0	18.3	28.1	12.8
15 to 19.....	2.8	10.7	15.7	3.8
20 to 29.....	2.1	12.0	10.6	2.5
30 to 49.....	.6	6.0	6.4	.6
50 and over.....	.1	1.3	9.2	.2

Based on U. S. Census.

farms in Saline County marketed ten percent, and two-cow farms in Gallatin County 23 percent, of the total cream sold by farmers.

Three-cow herds. Nearly two-thirds of the farms milking three cows sold cream. Over 80 percent of such farms in Wabash, Edwards, White, Pope, Massac, Brown and Schuyler counties had sales, but in the Chicago and St. Louis milksheds less than 25 percent of these farms sold cream.

While producing only five percent of the milk, these herds sold 10 percent of the cream. Sales by these herds represented two to three times as great a share of the total sales in southern Illinois as in northern Illinois.

Four-cow herds. Two-thirds of these farms sold cream, ranging from 85 to 90 percent of the farms in certain southeastern and western counties to less than a third in the Chicago and St. Louis milksheds. This size herd is an important source of cream, marketing one-seventh of the total amount. Only in areas supplying large whole milk markets were they of minor importance.

As a group, farms milking one to four cows marketed one-third of the cream sold in Illinois. In several southeastern Illinois counties these sales exceeded 60 percent of the total. Cream sales by these farms were of lesser importance in the northern half of the state, especially in the extreme northern section where they marketed less than 20 percent of the total.

Five- to nine-cow herds. Farms milking from five to nine cows supply the largest amounts of milk and cream in Illinois, producing nearly one-third of the milk and selling about one-half of the cream sold. Almost as many of these farms sold milk as sold cream in 1939, and during the past three years probably more have sold milk than have sold cream. Over 80 percent of the farms in many southeastern and western counties marketed cream, probably because of fewer whole milk outlets and the need for skim milk as a protein feed for livestock. Less than half of the farms milking cows in the St. Louis and Chicago milksheds sold cream.

Over one-half the total cream sold thruout the entire central and southwestern parts of the state came from five- to nine-cow herds, and they marketed an important share of the comparatively small amount of cream sold from farms in the Chicago milkshed.

In 1939, almost exactly one-half of the cows milked in Illinois were on farms which milked less than ten cows, and these farms produced 44 percent of the total milk.

Ten- to 14-cow herds. Only 28 percent of the farms milking 10 to 14 cows sold cream, and while they produced 18 percent of all milk produced

they sold only 13 percent of the cream. Over one-half these farms in the areas from Calhoun county north to Rock Island county and west of the Illinois River, in the Wabash and Ohio River basin of southeastern Illinois, and in Jo Daviess and Ford counties sold cream. Sales in the fluid milksheds were small.

Farms milking 10 to 14 cows marketed a small share of all cream in most counties with the exception of the northwestern livestock area; 35 percent of the cream sold in Carroll county came from 10-14-cow herds.

Fifteen- to 19-cow herds. Less than three percent of the farms milking cows had herds of this size; they produced nearly 11 percent of the milk, and sold nearly four percent of the cream. For the state one-sixth of these farms sold cream at some time during the year, but in 12 western Illinois counties over one-half of these farms, and in Piatt, Lawrence, White, and Jefferson counties over 60 percent, sold cream. In only eight counties, all located along Illinois' northern border, did these farms account for as much as 10 percent of the total pounds of butterfat sold as cream.

Twenty-cow herds and over. In the north central and western counties approximately one-fourth of the 20-29-cow farms sold cream, but there were relatively few herds of this size and they marketed only about two percent of the cream sold. Thirty-cow herds and over produced nearly seven percent of the milk produced in Illinois, but were unimportant sources for cream. There are many counties in the southern two-thirds of the state in which there are no herds of this size.

Conclusion. Creameries located in different sections of the state have, and will continue to have, different procurement and manufacturing problems. An understanding of where and from whom they will secure their butterfat is important not only to new operators but to operators who may wish to expand. It may also determine the manner in which they may operate.

R. J. MUTTI

SAVE IN BUYING FEEDER CATTLE

Flesh and weight are the two qualities in demand in feeder cattle this fall. The unskilled buyer may easily misjudge the amount of flesh carried by a bunch of feeder cattle. A mistake of only 25 cents per cwt. means \$2 on an 800 pound cattle, \$50 on only 25 head; over twice what the best feeder cattle buyers would charge for buying or helping to buy the cattle.

Weight is readily determined—buy only on actual weights, over scales of known accuracy. If the cattle bought are to move through a public market, there one has the greatest assurance of accurate weights.

Sort is especially important this year—(1) to get the grade and kind of cattle one is paying for, and (2) to get cattle that will feed out evenly, be ready for market at the same time. Skillful sorting is an art—a skilled sorter is one of the valuable men in any cattle market. If a buyer gets but two offgrade cattle in 25 head of only 800 pounds that are worth but 50 cents per cwt. less than the rest, there is \$8 gone right there. He may easily get three or four that are worth 50 cents to a dollar per cwt. less than the rest of the load—a loss of anywhere from \$12 to \$32 right at the start.

The unskilled buyer centers his interest in the better cattle in the lot. The skilled buyer looks first at the poorest ones.

Whether buying replacement cattle on the range, at the central markets, or from feeder cattle dealers, the best investment most feeders make is the few dollars required to secure the assistance of a competent feeder cattle buyer.

In recent years prices of slaughter cattle have been rising. This price rise offset some errors in buying feeders. Now we are at the price peak, with the next movement of prices down the hill. That will magnify errors in buying feeders, make them more costly.

Source of the cattle. Many feeders buy where they believe they are getting cattle direct from the range—buy from feeder cattle dealers who claim to handle only cattle direct from the range. Actually many of the cattle handled by feeder cattle dealers come direct from the central markets (Kansas City, St. Paul, Fort Worth, etc.), purchased for them by feeder cattle buyers operating on those markets.

More important than market or direct is the area from which the cattle come—northwest, intermountain, sandhills, southwest, etc. Where feeders are purchased late in the fall or in winter, northwestern and western cattle appear advantageous for Illinois feeders.

The careful buyer will know what he is getting, that he is not paying above the market, also where the cattle originated.

Cattle market in 1945. The big question in the minds of prospective feeders is the price of fed cattle during the next 10 months.

With \$18.35 the top price for weeks on end, with the supply of fed cattle so short, and with an enormous civilian demand for beef, one may find ample reason for optimism regarding the future market on fed cattle.

On the other hand, the Vinson directive still stands at \$16 as the top of the price range on choice—prime cattle. The few loads bringing \$18 or better are averaged in with many, many loads of cheaper cattle—in figuring packers' subsidies. This is the season when lower priced cattle are plentiful. What will happen to the \$18.35 price when cheaper cattle are not plentiful?

From the consumer side of the picture there are important factors. First, the production of quality beef has been sharply curtailed (thru beef price relationships imposed by the O.P.A.); the civilian population is getting little but common grade beef. This will continue for some months. If and when quality beef again becomes available to civilians, will they buy it in large quantities at prices necessary to cover feeders' costs; or will their food habits have changed to a point where it may take months to get them back as buyers of quality beef?

Moreover consumers are now benefiting from huge government subsidies now paid to the meat packers of the nation. Newspapers report \$462,000,000 meat subsidies paid to packers, by the government, for the fiscal year ended June 30, 1944. Will consumers continue to demand those subsidies? Will the government continue to pay them?

Quite as important as careful buying of feeders is the planning of a definite, and sound, feeding and marketing program (before the feeder cattle are purchased). Proper consideration of such a program is an effective persuader to careful buying of feeders.

As marketing time approaches, the skilled feeder keeps closely in touch with his sales agency, and thru them with the market situation.

Corn prices. A few weeks ago prospects indicated the probability of feeders being able to buy corn below ceiling prices. Now it is doubtful that corn will be available, in quantity, except at the ceiling price. Many farmers may prefer to take the loan price for corn, saving the risk, the labor, and the hazards of feeding cattle this winter.

War cattle prices. Finally, there is the possible effect of the ending of war in Europe upon market prices of cattle. That effect will likely be downward so far as market prices are concerned. Offsetting that probability is the promise of government support of prices of agricultural products. But there is no specific assurance as to the price of beef cattle (or of oats, barley, rye, hay, veal calves, sheep, lambs or wool) except that they "are to be supported at a fair parity relationship in so far as funds available will permit." That might prove to be another floor that has more holes than planking.

In any case feeders' assurance as to future prices must depend upon consumer demand, consumer buying power, rather than upon any promised government support program.

Conclusion. Many competent cattle operators believe this will be a good year for feeding cattle. Others equally competent say feeder cattle are too high priced in view of the conditions in effect, but that the demand for replacement cattle will probably continue strong enough to keep those prices high.

In conclusion the prospective feeder faces several problems, among them (1) whether to feed cattle this season; (2) what feeding program to carry thru; (3) what kind of feeders to buy—sex, grade, weight, and flesh; (4) from what area to obtain cattle; (5) how and where to buy them; and (6) how to feed and when to plan to market.

However and wherever the cattle are bought, eight feeders out of ten would find it a very good investment to hire a competent feeder cattle buyer to assist them in selecting and purchasing their cattle.

R. C. ASHBY

SOME THINGS TO DO BEFORE BUYING A FARM

Prospective purchasers of farm land, if they are farmers, may be familiar with the great variations in productivity and earnings of farms in their community. They are not likely to be familiar with values-based-on-earnings in other areas. It is entirely possible, however, that buying opportunities are more favorable in some other location, especially if special circumstances not associated with yields or markets result in considerable competition and high prices for land locally. Consider, therefore, the opportunities offered in different areas of the state and under different types of farming. In Illinois, it is suggested that the earned value of Illinois accounting farms be used as a guide. Keep in mind, however, that accounting farms have higher net earnings, larger acreages, larger crop yields, and greater efficiency than have average farms.

There is less danger now than in 1919 that farmers will assume that wartime prices will be maintained for many years after the war ends. Middle aged and older men remember what happened after the last war and young men have access to more information and guidance than their fathers had in 1919. Earned values by farming-type areas in Illinois, based upon net farm earnings on account-keeping farms during the 15-year period, 1926-1940, are given in Table 1. Considering the probable income from other forms of investment after the war and the probable desire of many people to return to the land, the four percent rate of capitalization would seem to be justified.

Study the farm carefully. Although soil, topography, and climatic conditions cause variations in emphasis upon major farm enterprises over large areas, there will be considerable variation between individual farms in any region. That makes it necessary to make a thorough study of any farm that you consider buying. Include in the study: (a) Soil types; slope; degree of erosion; needs for limestone, phosphate, and potash;

TABLE 1.—EARNED VALUE OF LAND AND BUILDINGS PER ACRE, ILLINOIS
ACCOUNTING FARMS BY FARMING-TYPE AREAS, 1926-1940

Farming-type area	Capitalization of net cash farm earnings, 15-year average, 1926-40	
	Five percent	Four percent
Area 1, Chicago Dairy.....	\$ 93	\$116
Area 2, Northwestern Mixed Livestock.....	100	125
Area 3, Western Livestock and Grain.....	103	129
Area 4, East-Central Cash Grain.....	106	132
Area 5, West-Central General Farming.....	66	82
Area 6, St. Louis Dairy and Wheat.....	34	42
Area 7, South Central Mixed Farming.....	14	18
Area 8, Wabash Valley Grain and Livestock.....	47	59
State Average.....	\$ 81	\$101

crop history; productivity; and drainage; (b) condition of permanent pasture and woodland; (c) adequacy and condition of buildings and fences; (d) water supply; (e) detriments and hazards, such as weeds, floods, drouthy soils, and insects; (f) effect of wasteland on valuation of the farm, including building lots and roads; and (g) location, roads, markets, schools, churches, neighbors, etc.

In trying to arrive at the value of a given farm, it would be helpful to forget about current prices and compute the normal agricultural value of the farm. This is done by crediting to the land and improvements the customary net rental to the landlord after allowing for the landlord's farm expenses (Table 2). Thus it is not necessary to calculate all the many items of cost of operating the farm which the tenant ordinarily pays. This method of valuing a farm may be used whether the farm is to be tenant-operated or owner-operated.

Normal income under typical management may be computed by using conservative yields for the acres that would be in each crop, on the average, and average prices over some prewar period that involved neither extreme depressions, drouths, booms or other abnormal disturbances or using a longer period of years including all sorts of disturbances. In either case, prices of farm products will be below present levels. Average prices received by Illinois farmers for the principal farm crops during the five prewar years 1935-1939 were as follows: Corn, \$.66; oats, \$.31; wheat, \$.86; soybeans, \$.90; and hay, \$9.39. Over a period of years good livestock men could expect to receive more than market prices for feed fed but that premium should be credited to management and not to the land.

Unless the purchaser has had considerable experience in buying and selling farms, he can well afford to employ a competent farm appraiser to submit to him a written report covering the items mentioned above as well as other information commonly found in an adequate farm appraisal.

TABLE 2.—FORM WHICH MAY BE USED TO COMPUTE THE NORMAL AGRICULTURAL VALUE OF A FARM

NORMAL INCOME UNDER TYPICAL MANAGEMENT							
Item	Acres	Average yield (bu.)	Total (bu.)	Average price (Normal)	Total value	Rental share to owner (%)	Value of owner's share
Corn.....	_____	_____	_____	\$ _____	\$ _____	_____	\$ _____
Oats.....	_____	_____	_____	_____	_____	_____	_____
Wheat.....	_____	_____	_____	_____	_____	_____	_____
Soybeans.....	_____	_____	_____	_____	_____	_____	_____
Cash rent.....	_____	_____	_____	_____	_____	All	_____
A. Owner's total gross income.....						\$ _____	
OWNER'S EXPENSES UNDER TYPICAL OPERATION							
Buildings—repairs, depreciation, insurance.....							\$ _____
Land improvements—lime, rock phosphate, fertilizers, fences, etc.....							\$ _____
Taxes on farm real estate.....							\$ _____
Crop expense—seed, seed treatments, etc.....							\$ _____
Miscellaneous.....							\$ _____
B. Owner's total gross expense.....						\$ _____	
Net earnings under typical operation (A minus B).....						\$ _____	
Value of property—net earnings capitalized at _____%						\$ _____	

How much income must the farm produce? Not only must all farm operating expenses, including taxes, be paid out of gross receipts but the typical owner must earn enough to take care of family living expenses, the amortization of debts, life insurance premiums, and savings that will provide for a reserve against bad years.

J. B. CUNNINGHAM

Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-3
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	187	242	199
1943.....	103	123	166	127	251	243	191	233	316	239
1943 Aug....	103	124	167	128	266	206	161	238	322	242
Sept.....	103	124	170	128	242	215	168	214	328	244
Oct.....	103	122	172	129	249	325	252	249	333	247
Nov.....	103	121	170	130	254	315	242	251	336	247
Dec.....	103	122	169	130	256	277	213	256	328	241
1944 Jan....	103	122	167	131	260	257	196	254	328	243
Feb.....	104	122	168	132	276	268	203	258	328	244
Mar.....	104	124	170	132	274	288	218	257	324	242
Apr.....	104	123	169	132	270	234	177	258	318	239
May.....	104	123	169	132	276	256	194	260	318	237
June.....	104	125	166	133	275	230	173	262	318	235
July.....	104 ¹¹	124	166	133	252	199	150	262	311	231
Aug.....	104 ¹¹	123	168	133	262	...	...	...	314	232

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Sept. 1943	Current months		
	1935-39	1942	1943		July	Aug.	Sept.
Corn, bu.....	\$.66	\$.77	\$.98	\$1.01	\$1.09	\$1.09	\$1.09
Oats, bu.....	.31	.48	.66	.73	.74	.71	.62
Wheat, bu.....	.86	1.13	1.43	1.50	1.47	1.45	1.46
Barley, bu.....	.62	.74	1.00	1.09	1.13	1.13	1.04
Soybeans, bu.....	.90	1.65	1.68	1.66	1.88	1.88	1.92
Hogs, cwt.....	8.52	13.37	14.07	14.40	13.10	13.80	14.00
Beef cattle, cwt.....	7.88	11.93	13.46	13.50	13.40	13.60	13.20
Lambs, cwt.....	8.36	12.28	13.57	12.70	13.40	12.80	12.80
Milk cows, head.....	58.00	102.00	129.25	130.00	124.00	121.00	121.00
Veal calves, cwt.....	8.66	13.63	14.40	14.40	13.50	13.50	13.70
Sheep, cwt.....	3.58	5.50	6.58	6.50	5.20	4.50	4.60
Butterfat, lb.....	.27	.39	.49	.49	.48	.48	.48
Milk, cwt.....	1.68	2.40	2.97	3.05	2.90	3.00	3.05
Eggs, doz.....	.19	.29	.36	.36	.30	.30	.31
Chickens, lb.....	.15	.19	.24	.25	.25	.25	.24
Wool, lb.....	.25	.40	.42	.44	.44	.42	.42
Apples, bu.....	1.08	1.53	2.49	2.50	3.10	2.50	2.70
Hay, ton.....	9.39	11.33	15.11	16.20	14.50	15.70	15.70
Potatoes, bu.....	.91	1.32	1.92	1.85	1.95	2.10	2.00

¹⁻¹²For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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WILL WARTIME AGRICULTURAL PRODUCTION BE MAINTAINED?

Certain analyses of the postwar position of Agriculture are being made on the assumption that there will be no decline in agricultural production after the war. It is argued that production once expanded is never contracted and that postwar markets will have to contend with as large a volume as was disposed of in wartime.

This view seems to the writers to be questionable. Our expansion in wartime was accomplished by internal rather than external changes. We did not expand agriculture into new areas and develop new farms. In fact, it is estimated that the number of farm units declined from 6,210,000 in 1939 to 5,570,000 in 1943. Rather the expansion came from internal expansion on a reduced number of farms. There is, therefore, not a new group of farms which has to continue in production in order to meet their fixed costs.

What happened during and following World War I? In 1920, the peak year, overall agricultural production was up 11 percent over 1910-1914. This compares with an increase of 33 percent in 1944 over 1935-1939. For the five years following 1920, production averaged about 1 percent higher than in 1920. Thus, the rather modest increase in output in World War I was followed by no decline in production. But it does not follow from this that there will be no decline from the much larger increase in output during World War II.

Two general reasons may be advanced for a different situation following the present war. First, livestock output did not increase much during World War I, while it was a major element in the increase in World War II. Certain elements in livestock production are very flexible. In fact

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

even before the end of the current war, the two most flexible elements, hogs and poultry, have retreated sharply from the high level they had reached in 1943 and 1944.

The picture will be made clearer by the overall increase in production in the two periods (Table 1).

TABLE 1.—COMPARATIVE INCREASE IN PRODUCTION FOR SALE OR HOME USE OF DIFFERENT CLASSES OF PRODUCTS, 1920 AND 1944

	1944 with 1935-1939 = 100	1920 with 1910-1914 = 100
Food grains.....	153	123
Feed grains and hay.....	137	131
Cotton and seed.....	90	92
Oil-bearing crops.....	262	101
Tobacco.....	124	144
Truck crops.....	140	153
Fruits and nuts.....	121	118
Vegetables.....	106	107
Sugar crops.....	83	132
Total crops.....	124	115
Meat animals.....	152	109
Poultry and poultry products.....	180	104
Dairy products.....	113	109
Total livestock and products.....	138	107
Total agricultural products.....	133	111

In 1920 crop production was up 15 percent from 1910-1914 while livestock and livestock products were up only 7 percent. Compared with these, in 1944 crop production was up 24 percent and livestock production was up 38 percent. The increase in livestock output in 1944 was made possible by a succession of favorable crop years and the use of large accumulated reserves of corn and wheat. Farmers have already moved to reduce the volume of hogs and poultry. After 1920, since the expansion in livestock had not been large, there was no necessity to cut back. Furthermore 1920 was followed by a series of years when corn crops were very good. A large part of the increase in livestock production in World War II is not likely to be maintained after the war and since it played such a large part in the overall increase in output, the total increase is not likely to be maintained.

The increases in crop output were also greater in World War II than in the earlier period although the pattern in the two periods did not differ greatly. In both periods grains (both food and feed), tobacco, truck crops and vegetables increased, and in both periods cotton declined. One great difference was the striking increase in oil-bearing crops in 1944 in which crops but little increase occurred in 1920.

Will these increases in crop output be permanent? Again they are relatively larger than those which occurred in 1920. This larger increase probably reflects the greater power resources of farmers which made

possible for them to divert more land to intensive use and do so more rapidly. The shifts toward more intensive crops have been so sharp and they have put such a basic drain on soil resources that they are not likely to prove permanent.

What happened in Illinois is suggestive of what happened in the states which had sufficient flexibility in their agriculture to increase output sharply. In 1944 the acreage of corn was 9.3 million acres or 1.1 million over the 1937-1941 average; the acreage of soybeans was up to 4.0 million acres or 1.4 million over 1937-1941. Here is an increase in these two intensive crops of 2.5 million acres. With changes in the minor crops, the combined acreage of intertilled crops in 1944 was 13.8 million compared to 11.4 million in 1937-1941.

Where did the land come from to make these increases possible? It came from land formerly in small grain, hay, and rotated pasture. The acreage in small grain decreased from 6.0 to 4.8 million acres; the land in hay and rotated pasture from 6.2 to 4.9 million. Combined the reduction was 2.5 million acres or equal to the increase in corn and soybeans.

In other words the farmers of the state shifted from rotations which tended to maintain the nitrogen and organic matter as well as ones which drained less heavily on the other soil mineral elements to rotations which were more depleting and erosion promoting but which furnished more of the needed oil seeds and starch feeds.

These very exploitative cropping systems cannot be continued without affecting crop yields. They were admittedly an emergency wartime development. Many farmers will retreat from them when the emergency passes and the short-run effect of this reduction in intertilled crops will be to obtain less product. The long-run effects may have a different result. Immediately after the war yields cannot be expected to be any better than in the immediate prewar years. Hybrid corn was already being used by most Illinois farmers before 1940.

In view of the following facts, it does not seem likely that wartime production rates in agriculture will continue with peacetime even though this happened after World War I. *First*, such a large part of the increase was represented by increases in livestock production of a purely cyclical character. *Second*, the increases were of much greater magnitude, reflecting a conjunction of favorable years, use of accumulated feeds, and reserves of power and labor which could be speedily mobilized to get sharp increases. *Third*, the increases in crop production have involved the expansion in acreages of soil-depleting crops beyond the levels possible for a sustained permanent system of farming. A return to the rather high immediate prewar level, 1938-1940, is more likely than a continuation of the expanded wartime level.

L. J. NORTON and E. L. SAUER

THE FEEDER PIG ENTERPRISE ON ILLINOIS FARMS

Feeder pigs, as a swine enterprise, enjoy a wide variation in popularity among Illinois livestock men; they are being accepted and denounced for similar reasons. Many hog breeders scrupulously avoid buying feeder pigs because of the diseases and parasites which may be carried onto their farms by such pigs. Other farmers prefer to buy feeder pigs in order to avoid the hazards of disease and parasites involved in raising baby pigs. Many cattle feeders have long followed the practice of buying pigs of suitable weights to run behind the droves of cattle being fed on their farms.

Changes in feed supplies and in the hog-feed ratio affect the number of pigs bought and sold as feeders. Farmers unable to get corn or unwilling to risk feeding purchased corn at the prospective hog prices offer their pigs as feeders. Other farmers with a surplus of feed and perhaps more optimistic about hog prices may decide to buy pigs in preference to the longer process of expanding their breeding herd.

An increasing interest in feeder pigs on the part of certain Illinois farmers is due to the character of their farms and the difficulty of achieving the necessary sanitation for profitable baby pig production. Certainly the lack of surface drainage presents a problem on many level-lying farms. Whether feeder pigs are the solution in lieu of a more rigorous swine sanitation program remains to be seen. This article does not pretend to give the answer; it is rather a report on the first of what we hope to carry on as an annual analysis of feeder pig enterprises on account-keeping farms in northern and central Illinois.

Table 1 presents an analysis of the swine enterprise on twenty-two farms in the Farm Bureau Farm Management Service on which feeder pigs were the only hogs fed in 1943. An additional fifteen farms bought more pigs than they raised, and a total of 114 farms out of 870 bought 20 percent or more of the number of pigs they sold in 1943.

The swine feeding enterprise on these 22 farms (Table 1) has to be considered a major livestock enterprise since these farmers purchased an average of 348 pigs per farm representing a total weight of 33,349 pounds and a total production of 49,292 pounds of pork per farm. As might be expected these farms also carried large cattle enterprises as is evidenced by the average of 46,236 pounds of beef produced per farm. It is also noteworthy in view of the size and nature of the feeder pig enterprises on these farms that the death loss was only 2.2 percent of the total weight of pork produced, a figure just under the average of 2.3 percent for 870 swine enterprises used in the analysis presented in the 1943 annual report of the Farm Bureau Farm Management Service.¹ The pounds

¹Mimeograph AE2202.

TABLE 1.—ANALYSIS OF SWINE ENTERPRISE ON FARMS WITH FEEDER PIGS ONLY, 1943

Item	All farms	Pigs over 100 lb. when purchased	Pigs under 100 lb. when purchased
Number of farms.....	22	10	12
Value of feed fed to hogs.....	\$4 654	\$5 087	\$4 293
Total returns from hogs.....	\$5 621	\$7 056	\$4 424
Returns per \$100 feed fed to hogs.....	\$ 121	\$ 139	\$ 103
Number of hogs bought.....	348	397	307
Total weight of hogs bought (lb.).....	33 349	48 360	20 841
Average weight per hog bought (lb.).....	96	122	68
Total value paid for hogs bought.....	\$5 501	\$7 319	\$3 986
Average price paid per 100 lb. bought.....	\$ 16.50	\$ 15.13	\$ 19.21
Number of hogs sold.....	262	336	198
Average weight of hogs sold (lb.).....	273	291	248
Total pounds of pork produced (lb.).....	49 292	57 948	42 078
Death loss—percent of weight of pork produced...	2.2	2.1	2.2
Feed fed per 100 lb. pork produced (lb.).....	479	454	508
Feed cost per 100 lb. produced.....	\$ 9.44	\$ 8.78	\$ 10.20
Average price received per 100 lb. sold.....	\$ 14.04	\$ 14.10	\$ 13.94
Pounds of beef produced per farm.....	46 236	58 587	35 943
Cattle returns, percent of average.....	95	92	99
Productive livestock returns, percent of average.....	92	95	88
Net earnings per farm.....	\$9 358	\$12 093	\$7 080
Rate earned on the investment.....	13.2%	14.3%	12.0%

of feed and the feed cost per 100 pounds of pork produced similarly are just under the averages of the 487 lb. and \$9.50 on the 870 farms.

While these factors are indicators the measure of profitability most commonly used is the return per \$100 feed fed, in this case \$121 for the feeder pigs and \$136 as the average for all swine enterprises on the 870 Farm Bureau Farm Management Service farms in 1943. This does not mean, however, that the feeder pigs were that much less profitable than the average swine enterprise. The margin of profit is determined by the amount of the costs other than feed which are incurred by the amount of livestock consuming \$100 worth of feed.

The amount of these other costs for feeder pigs is still an open question, but it is reasonable to assume that it is considerably less than with breeding herds because the latter use more equipment and require a greater input of labor. Preliminary studies indicate that for 1943 returns from the feeder pig enterprises may have been just as profitable as returns from the average breeding and fattening enterprise. Returns from feeder pigs on individual farms, on the other hand, indicate a wide range of profitability or unprofitability, most of which was due to factors not at all peculiar to feeder pigs. Feeding efficiency, whether it is a feeder pig or breeding enterprise, still remains one of the most important factors in determining the level of profits earned.

Of the factors peculiar to feeder pigs the weight of the pigs purchased and the price paid seem to be responsible for or related to variations in the profitability of the enterprise. Of the 22 farms the 10 which purchased the heavier pigs had the following advantages: paid \$4.08 less

per 100 pounds; their feed cost was \$1.42 lower per 100 pounds pork produced; they received \$0.16 more per 100 pounds of pork sold; their death losses were a trifle lower, and they required 54 pounds less feed to produce 100 pounds of pork.

Of these advantages the lower price paid is probably the most significant. If the 12 farms with the lighter pigs had paid the same price as the 10 farms with the heavier pigs, their returns would have been \$850 greater, or more than enough to raise the returns per \$100 feed fed above the actual average of \$121. It is to be expected, however, that the younger and lighter weight pigs will normally sell for a higher price per pound than pigs that carry more weight, particularly pigs over 100 pounds in weight.

It is, however, altogether possible to minimize unduly the cost per pound of the smaller pigs. In Table 2 the 12 farms purchasing the lighter pigs have been divided according to the price paid per 100 pounds when purchased. Again we find the higher price being paid for the lighter hogs. Even though the price *per head* was lower in this group, the difference of 27 pounds in the average weight was responsible for the higher price *per pound*. The large number of pigs involved makes this difference in weight price doubly significant— $\$4.80 \times (18,240 \div 100)$ equals \$876 more paid for the same total weight than on the farms which paid a higher price per head but a lower price per pound.

Price differences alone were not responsible, however, for the entire difference in the profitableness of the two groups of farms shown in Table 2. The death loss, the pounds of feed required, and the feed cost per 100 pounds of pork produced indicate that apparently the risk is greater with the smaller pigs and that economical gains are more difficult to secure with pigs which may be runty and stunted.

TABLE 2.—INFLUENCE OF PRICE PAID ON RETURNS FROM FEEDER PIGS UNDER 100 LB. WHEN PURCHASED ON FARMS WITH ONLY FEEDER PIGS, 1943

Item	Price paid above \$18.00 per 100 lbs.	Price paid under \$18.00 per 100 lbs.
Number of farms.....	8	4
Value of feed fed to hogs.....	\$4 350	\$4 189
Total returns from hogs.....	\$4 021	\$5 246
Returns per \$100 feed fed to hogs.....	\$ 92	\$ 125
Number of hogs bought.....	308	303
Total weight of hogs bought (lb.).....	18 240	26 052
Average weight per hog bought (lb.).....	59	86
Total value paid for hogs bought.....	\$3 853	\$4 254
Average price paid per 100 lb. bought.....	\$ 21.13	\$ 16.33
Average price paid per head.....	\$ 12.50	\$ 14.03
Number of hogs sold.....	192	209
Average weight of hogs sold (lb.).....	224	291
Total pork produced (lb.).....	40 150	45 944
Death loss—percent of weight of pork produced.....	2.5	1.8
Feed fed per 100 lb. pork produced (lb.).....	529	470
Feed cost per 100 lb. pork produced.....	\$ 10.82	\$ 9.12
Average price received per 100 lb. sold.....	\$ 14.05	\$ 13.79

It must be remembered that all of these data represent conditions for only one year and that ruinous death losses from disease may occur on farms which have never experienced such difficulties. Also, the number of farms included in the analysis shown in Table 2 is too small to be considered a reliable sample unless similar results are secured year after year.

F. J. REISS

PROBLEMS IN IMPROVING ILLINOIS RURAL SCHOOLS

Illinois is faced with serious problems relating to rural school improvement as shown by a number of studies made by the Department of Agricultural Economics. These problems relate to the decreasing number of school-age children in rural areas, the decreasing number and increasing size of farms, the drop in rural school enrollments, the differences among districts in ability to support rural schools and similar problems.

The number of school-age children in rural areas is now decreasing so that in 1940 there were less than half as many children in many rural areas as there were fifty years ago. In one township of McDonough County, for example, the total population had decreased by two-thirds, and by one-third or more in all but four of the other townships. The actual number of school-age children had decreased 18 percent in ten years, from 1930 to 1940. In Fayette County half the townships showed marked decreases in the number of school-age children from 1930 to 1940. In general, the largest decreases were in the open-country areas.

The studies show also that the number of farms is decreasing and that farms are increasing in size, especially in the good-land areas. In McDonough County there was a decrease in the number of farms from 1930 to 1940 in 12 of the 18 townships. The average acreage per farm increased in all but four townships. In Fayette County the number of farms decreased by 4.1 percent from 1930 to 1940 and in one township by 21.9 percent. In thirteen of the 20 townships the average size of farms increased in the ten years, 1930-1940.

The attendance in rural schools has, therefore, decreased seriously so that more than half of the one-room schools in the state had less than 12 in average daily attendance in 1940. In McDonough County almost three-fourths of the rural schools had less than 12 in average daily attendance in 1940-41; in the one-room schools in Fayette County 56 percent of the schools had less than 15 children in average daily attendance. At least 15, and preferably a minimum of 20 pupils per teacher, are necessary to maintain an efficient and effective school. More than two-thirds of the one-room schools of Illinois fall below this standard; almost one-seventh



FIG. 1.—McDONOUGH COUNTY SOIL GROUP MAP

Group I—Nearly level to gently rolling, highly productive general farming prairie soils (slopes 0 to 7 percent major drainage lines).

Group II—Nearly level grayish surface clay pan subsoil, moderately productive general farming soils.

Group III—Strongly sloping to steep timbered soils adapted to timber and pasture. Includes small irregular areas of nearly level to gently rolling areas of moderately low productivity, adapted to general farming.

Group IV—Bottom land highly productive, but subject to overflow hazard.

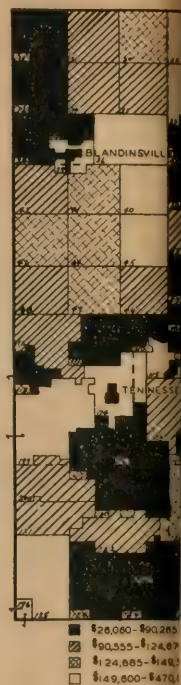


FIG. 2.—ASSESSED VALUATION BY TRACT

have less than seven in average daily attendance. These will be denied state-aid under recent state legislation unless changes are made.

Financial support for rural schools is inequitable. Assessed valuation for rural elementary school districts in Fayette County ranged from \$4,106.085 to \$26,875 in 1942, a ratio of 152+ to 1. One-fourth of the elementary districts in the county have tax rates of \$1.32 or higher whereas one-fourth have tax rates ranging from three cents to 85 cents on \$100 valuation. In McDonough County the range in valuations was from a low of \$26,060 to a high of \$470,829 per elementary school district. I

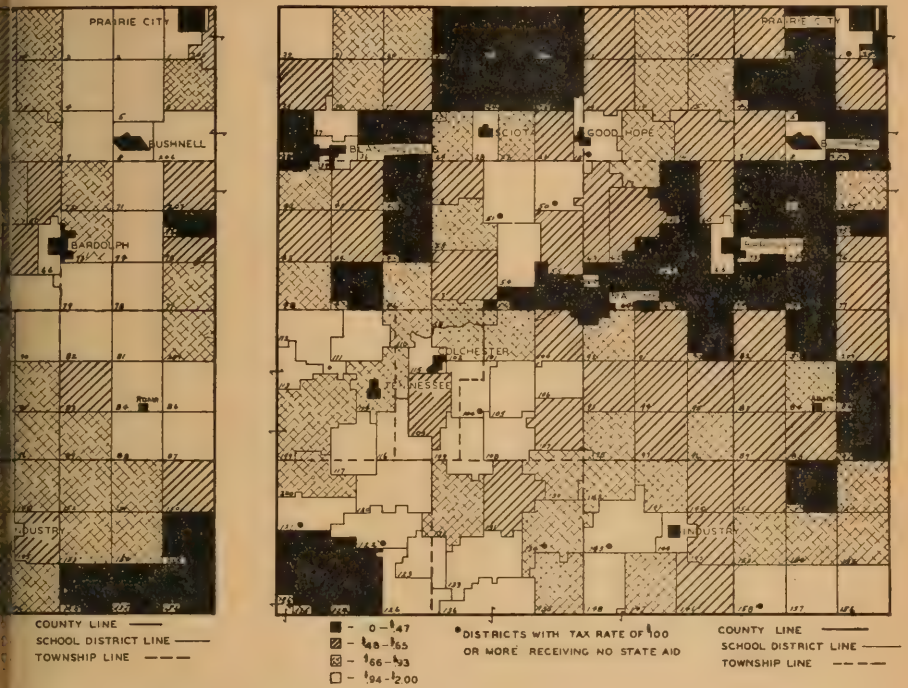


FIG. 2.—AVERAGE TOTAL (BUILDING AND EDUCATIONAL) TAX RATES FOR ELEMENTARY SCHOOLS IN McDONOUGH COUNTY, 1941

FIG. 3.—AVERAGE TOTAL (BUILDING AND EDUCATIONAL) TAX RATES FOR ELEMENTARY SCHOOLS IN McDONOUGH COUNTY, 1941

general, the poor land areas had low valuations and high tax rates and the good land areas high valuations and low tax rates (see Figures 1, 2, and 3).

These facts point to the necessity for providing larger attendance, administrative and financial units. The attendance units need not be the same as the administrative or finance units. An administrative area might well include a number of attendance areas and one finance unit may well serve several administrative units or all rural school districts in a county.

The studies show the need for relating elementary and high school district reorganization. More than two-thirds of the high schools in the state had fewer than 150 pupils in average daily attendance in 1940-41. In McDonough County only two of the nine high schools had more than 120 pupils in average daily attendance. If high schools in the county were to serve true community areas and to include all territory of the county an average tax rate of 70 cents on \$100 valuation would provide funds equal to those expended in the county for high school purposes in 1941-42. The larger high school areas, as shown by the study, might well become the administrative areas for rural elementary as well as high schools for the county.

These studies show the need for widespread study and discussion of rural school problems in Illinois. They do not endeavor to point out all the present difficulties, such as the very serious shortage of properly trained rural teachers; they do form the basis upon which further study and discussion can be projected looking to effective rural school reorganization in the state.

D. E. LINDSTROM

CROP INSURANCE AND ILLINOIS FARMERS

Producers of wheat in Illinois carried Federal crop insurance increasingly from 1939 through 1943, when new contracts were discontinued. Congressional appropriations to begin insurance anew on wheat, cotton, hemp and, in experimental areas, on other crops may be made in 1945. Wartime considerations may give special color to this second period of experimentation with Federal crop yield insurance. The experience of both periods may need to be studied to help this country to perfect a permanent plan for nation-wide crop yield coverage.

Illinois' experience with wheat crop insurance. Illinois is one of 36 states in which Federal crop insurance contracts were made on wheat. Even when seven states are dismissed as having too little to count, there still remain 29 wheat insurance states in which more than \$25,000 in premiums were taken in the period, 1939-1943. In wheat crop insurance, one finds an extended and meaningful experience in Illinois.

Among the 29 wheat states, four were outstanding in amount of wheat crop insurance premiums collected in 1943. These are Nebraska, \$1,590,000; Kansas, \$1,299,000; Missouri, \$821,000; and Illinois, \$780,000. In only one of these four states, however, was the amount collected in premiums that year enough to offset the amounts paid out to those indemnified for wheat losses. That state was Nebraska. Losses in Nebraska were only 66 percent of premiums in 1943. In Kansas losses were 180 percent of premiums. In Missouri and Illinois losses were approximately 350 percent of premiums.

The situation was not much different when the five-year period, 1939-1943, is considered as a whole. Among the 29 wheat states, there were 12 in which wheat premiums of \$1,000,000 or more were received in this period. Nebraska, in this longer period, too, was the outstanding wheat insurance state. In that state the losses paid were 210 percent of the premiums collected. Other states with loss ratios of 200 percent or more in this group are: Texas, 200 percent; Oklahoma, 230 percent; Indiana, 260 percent; Illinois, 340 percent; and Missouri, 430 percent. Thus in the five-year period, as in 1943, Illinois was a source of heavy losses to the

Federal Crop Insurance Corporation. In other words, wheat producers in Illinois received reimbursement beyond premiums paid in larger relative amount than in any other heavy wheat insurance state except Missouri.

An unusually large amount of wheat plantings were abandoned in Illinois in 1942 and 1943 and the yields from the acreage harvested were low. The rate of abandonment in Illinois for the 1942 crop season was 16.3 percent and for the next year 15.5 percent as compared with 4.4 percent for 1932-1941. The national rate of abandonment was 20.6 percent in the ten years, 1932-1941, over four times the long-time Illinois rate. In 1942 and 1943, however, abandonment in the nation as a whole was less, only a third to a half of the long-time rate. Thus in wheat abandonment Illinois was one of a few states in which these two years were adverse.

In yields the story is similar. Illinois wheat yields were as follows: 1942, 13.0 and 1943, 16.5 bushels as compared with 1932-1941 average of 18.1 bushels. The national yield, 14.3 bushels in 1932-1941 was 19.7 in 1942 and 15.6 in 1943.

In 1942 the causes of loss in Illinois were winterkilling (59 percent of the total), flood (27 percent) and Hessian fly (9 percent). In 1943 the major causes of loss were winterkilling and flood.

It is not surprising, therefore, that the effect of widespread insurance of wheat in Illinois in these two years was to increase the national deficit of losses paid over premiums collected.

The increasing importance of wheat crop insurance in Illinois from 1939 to 1943 is shown in Table 1. Compared with 1939 the number of insured farms in 1943 was four times as large, the amount of premiums in bushels three times, the value of premiums eight times, the number of losses paid 17 times, the average loss paid in bushels 30 times and in values 85 times. Corresponding increases in the country as a whole were in all these respects smaller, thus giving Illinois increased relative prominence at the later dates. Premiums collected in Illinois were about three percent of all collected on wheat in the United States in 1939 and the losses paid to Illinois producers were less than one percent. In 1943 the corresponding percentages were about seven for premiums collected and about 15 for losses paid.

Experience with the 1942 crop for which data are available in considerable detail, may be studied to advantage by Illinois farmers.

The acreage actually harvested for the 1942 crop of Illinois wheat was approximately 16 percent less than the acreage planted. Producers with Federal wheat crop insurance could claim indemnity for much of this damage, since most of their contracts called for 75 percent coverage. In some cases the same land was replanted to produce other products for 1942 harvest. Insured wheat that came through well gave no basis for claim.

TABLE 1.—WHEAT CROP INSURANCE OPERATIONS, UNITED STATES AND ILLINOIS, 1939-1943

	Farms insured	Premiums collected		Insured farms with losses	Losses	
	<i>Number</i>	<i>Bushels</i>	<i>Dollars</i>	<i>Number</i>	<i>Bushels</i>	<i>Dollars</i>
United States						
1943	393,998 ^a	7,992,320	\$10,567,494	115,751	11,934,552	\$17,318,747
1942	400,067	8,770,660	8,448,453	108,499	10,573,816	13,939,542
1941	371,392	12,643,073	7,096,377	130,770	18,854,417	18,925,086
1940	360,596	13,796,798	9,155,041	112,762	22,899,156	13,694,822
1939	165,776	6,670,315	3,410,941	55,932	10,163,899	5,601,562
Illinois						
1943	49,542	521,400	779,989	17,084	1,800,901	2,725,791
1942	29,751	309,871	330,103	18,376	1,867,629	2,476,512
1941	32,894	417,548	263,416	5,547	443,116	436,653
1940	14,254	215,341	150,639	792	36,047	23,959
1939	12,189	185,193	100,362	970	58,294	33,514
Illinois as percentage of United States						
1943	12.6	6.5	7.4	14.8	15.1	15.7
1942	7.4	3.5	3.9	16.9	17.7	17.8
1941	8.9	3.3	3.7	4.2	2.5	2.3
1940	4.0	1.6	1.6	0.7	0.2	0.2
1939	7.4	2.8	2.9	1.7	0.6	0.6

^aEstimated.

(Based on hearings before the subcommittee of the Committee on Appropriations, House of Representatives, Seventy-Eighth Congress, Second Session, on Agriculture Department Appropriation Bill for 1945, 877 and 883.)

The way 1942 results worked out in Illinois counties can be seen in Figs. 1 and 2, the former showing acres planted to wheat and the latter the number of bushels of wheat loss paid to each 100 bushels of estimated production. From Fig. 1 it is clear that individual counties ranged in planted acres from about 400 acres in each of five counties, three of them in the extreme northwestern part of the state to between 62,000 and 66,000 acres in three counties in the East St. Louis area.

Three-fifths of the wheat acres planted in Illinois for the 1942 crop was insured (Table 2). In three of the nine crop reporting districts, all in the central part of the state, from 80 to 88 percent of the planted acres were insured. In two southern Illinois districts the proportion of planted acres insured was between 36 and 40 percent. The southwestern district which includes counties from St. Clair and Clinton to Pulaski had nearly a third of the planted wheat acreage in the state, but only one-seventh of the insured wheat acreage of the state was in that district.

Losses paid in 1942 amounted to 20.2 bushels for each 100 bushels of expected production on insured farms. In over two-thirds of the counties in the northern half of the state the losses paid, expressed as county averages, were less than half of the state average. In the southern half of the state the county average ratios of losses paid to expected production on insured farms extended over a range from 0 in Hardin County to 44 bushels in 100 in Crawford County. In general, there were two extensive areas of high ratios in 1942. One of these was across the northern part

TABLE 2.—WHEAT CROP INSURANCE OPERATIONS, BY CROP REPORTING DISTRICTS, ILLINOIS, 1942

Reporting district ^a	Acres planted in wheat		Wheat insurance		
	Total	Insured	Premiums	Losses paid	
		<i>Number</i>	<i>Percent</i>	<i>Bushels</i>	<i>Bushels</i>
1.....	28,670	16,766	58.5	18,473	8,942
3.....	16,730	7,507	44.5	11,551	3,638
4.....	96,100	84,492	87.9	72,196	129,336
4a.....	279,450	230,426	82.5	179,785	757,339
5.....	156,520	125,559	80.2	94,065	443,589
5.....	32,100	22,795	71.0	28,650	28,617
5a.....	121,050	60,722	50.1	65,611	150,926
7.....	324,880	105,514	32.4	92,393	284,449
7.....	114,490	42,901	37.5	41,764	58,727
State.....	1,170,000	696,682	59.6	595,488 ^b	1,866,564

^aDistricts number from north to south and include important cities as follows: 1, Dixon; 3, Chicago; 4, Galesburg; 4a, Springfield; 5, Bloomington; 6, Champaign; 6a, Mattoon; 7, Carbondale; and 9, Harrisburg.

^bDiscrepancies between these state totals and those published in Congressional hearings exist in premiums paid by the insured and in losses paid but are notable in bushel premiums, those shown for Illinois at the hearings being only about one-half as large as those shown here based on state office figures.

of southern Illinois from near St. Louis to Crawford County, and the other in west central Illinois from Logan and Mason counties to Scott County.

Spring wheat which is mostly in northern Illinois counties occupies only about one percent as much land as winter wheat in the entire state. An important variety in Illinois is soft red winter. Its area of production extends from Missouri east to the Atlantic. In general, as compared with hard red winter, yields of soft red winter wheat are lacking in dependability in this part of the country.

Some revisions were made in 1943. To appraise all the factors entering into the crop insurance development to date would go beyond the scope of this treatment. One can note, however, that efforts were made to obtain a more adequate basis in statistics. Two maps of Illinois are included (Figs. 3 and 4) to show the revised check yields of wheat and revised check rates on wheat that went into effect in Illinois counties for the crop year 1943. The check yields, based on long-time averages, had been raised slightly from a general state average of 17.3 bushels used in 1942 to 17.5 for 1943.

The insurance rate per acre averaged 1.05 bushels in 1943. It had been 0.92 bushel in 1942. Rates were varied according to computed risks and ranged from about three-fifths of the state average in the wheat counties south of Peoria to nearly twice the state average in counties near Chicago.

If the rate for 1943 had been raised to a point that would have covered all loss, as it actually turned out, it is a question whether many contracts would have been written. Losses from insurable hazards were very high in a number of wheat-producing states not only in 1943 but for some



FIG. 1.—ACRES PLANTED TO WHEAT,
ILLINOIS, 1942 CROP
(000's omitted from county totals)

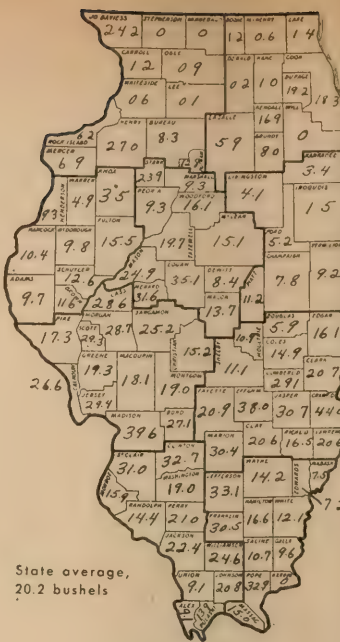


FIG. 2.—WHEAT CROP INSURANCE
LOSSES PAID (IN BUSHELS) PER
100 BUSHELS OF INSURED PRO-
DUCTION, ILLINOIS, 1942 CROP



FIG. 3.—LONG-TIME AVERAGE WHEAT YIELDS
USED AS CHECK FIGURES IN INSURANCE
OPERATIONS, ILLINOIS, 1943 CROP

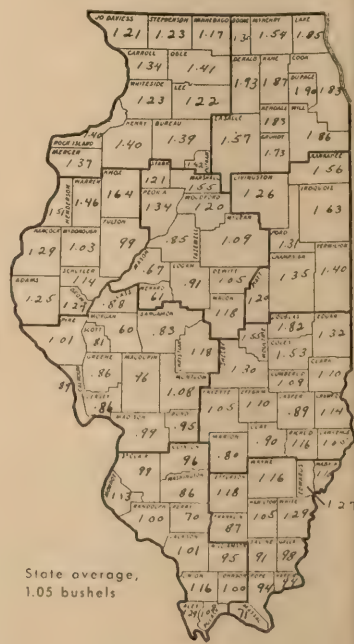


FIG. 4.—WHEAT CROP INSURANCE
PREMIUMS COLLECTED (IN BUSH-
ELS) PER ACRE, ILLINOIS, 1943 CROP

years before. To what extent the later 1940's will continue to exhibit high rates of winterkilling and other insurable damage remains to be seen.

Looking ahead. The Illinois experience raises a question as to the extent to which farmers in wartime may take chances in using land subject to flooding or in planting fall-sown crops or in using tracts where insect damage to a crop can be expected. Favorable prices may be established and other conditions may be provided especially to stimulate farmers to produce. Soviet Russia is an example of one country in which certain crops have been favored in wartime by crop insurance at low cost or no cost. In the United States neither wheat nor cotton would be suggested as proper examples for the substitution of low-cost for pay-its-own-way crop insurance. It remains to be determined under what conditions, if any, subsidy to producers of special crops would be less burdensome to the public if supplied not altogether in high price per unit of product, but partly in low-cost insurance on yield per acre.

To seek 100 percent insurance of a single crop, especially if it is the only crop suited to a single-crop region, may involve difficulties over and above those involved where practically all lines of crop production are insured. If insurance is available for wheat but not for corn, for example, there may be a tendency for some land subject to special hazards to be put into wheat. Cheap wheat insurance, for example, unless it were offset by equally cheap insurance on other crops, might merely cause this effect to be the greater.

Whatever the need for low-cost crop insurance on flax and other crops in which wartime interest may be enhanced, it is clear that the longer-time need will be for a crop insurance structure having at least the following characteristics:

1. It should include the major crops of the state and region.
2. The rates charged should be in line with actual experience in localities and regions as well as in the broader national scene, and should be soundly adapted to the individual crops.
3. The administration should be scientific. At times, the national interest may seem to warrant a temporary subsidy on some line of farm production, but such cost as is borne by producers should be distributed on sound actuarial principles.

C. L. STEWART and O. L. WHALIN

H. P. Rusk
Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	187	242	199
1943.....	103	123	166	127	251	243	191	233	316	239
1943 Oct.....	103	122	172	129	249	325	252	249	333	247
Nov.....	103	121	170	130	254	315	242	251	336	247
Dec.....	103	122	169	130	256	277	213	256	328	241
1944 Jan.....	103	122	167	131	260	257	196	254	328	243
Feb.....	104	122	168	132	276	268	203	258	328	244
Mar.....	104	124	170	132	274	288	218	257	324	242
Apr.....	104	123	169	132	270	234	177	258	318	239
May.....	104	123	169	132	276	256	194	260	318	237
June.....	104	125	166	133	275	230	173	262	318	235
July.....	101	124	166	133	252	199	150	262	311	230
Aug.....	104	123	168	133	261	185	139	263	314	232
Sept.....	104 ¹¹	123	166	133	244	196	147	264	313	231
Oct.....	101 ¹¹	123	170	133	265	...	...	...	...	230

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Dec. 1943	Current months		
	1935-39	1942	1943		Oct.	Nov.	Dec.
Corn, bu.	\$.66	\$.77	\$.98	1.06	\$1.08	\$.99	\$1.04
Oats, bu.	.31	.48	.66	.78	.65	.65	.70
Wheat, bu.	.86	1.13	1.43	1.54	1.54	1.56	1.57
Barley, bu.	.62	.74	1.00	1.20	1.13	1.13	1.06
Soybeans, bu.	.90	1.65	1.68	1.80	2.04	2.05	2.05
Hog, cwt.	8.52	13.37	14.07	13.10	14.10	13.90	13.70
Beef cattle, cwt.	7.88	11.93	13.46	12.80	13.50	13.50	13.20
Lamb, cwt.	8.36	12.28	13.57	13.40	12.90	12.80	13.20
Milk cows, head....	58.00	102.00	129.25	126.00	118.00	117.00	119.00
Veal calves, cwt....	8.66	13.63	14.40	13.80	13.70	13.70	13.40
Sheep, cwt.	3.58	5.50	6.58	5.80	4.60	4.60	5.00
Butterfat, lb.....	.27	.39	.49	.50	.48	.49	.50
Milk, cwt.	1.68	2.40	2.97	3.10	3.15	3.20	3.15
Eggs, doz.	.19	.29	.36	.41	.34	.40	.39
Chickens, lb.	.15	.19	.24	.23	.24	.24	.24
Wood, ft.	.25	.40	.42	.44	.43	.43	.44
Apples, bu.	1.08	1.53	2.49	3.00	2.90	2.85	3.10
Hay, ton.....	9.39	11.33	15.11	18.60	16.60	17.90	18.40
Potatoes, bu.....	.91	1.32	1.92	1.70	1.80	1.80	1.85

¹⁻¹²For sources of data in tables see October issue.

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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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GETTING MONEY INCOME FROM LEGUMES AND GRASSES

The obtaining of cash income from land in legumes and grasses needed for soil improvement and erosion control is a most important problem not only in the immediate postwar period but also in the long look ahead.

Soil scientists and thoughtful farmers seem to be agreed that a good soil fertility program for most corn belt soils requires that all cropland shall be occupied by a good soil-building legume such as alfalfa, sweet clover, or red clover for at least one-fourth of the time. On only some of the more productive soils can the crop yields be maintained by the use of sweet clover, lespedeza, and Hubam seeded in small grain and plowed under for the next year's grain crop.

It is necessary to keep all sloping land subject to serious erosion in legumes and grasses from one-third of the time in case of some fields to all of the time in case of other fields if the land is to continue to produce good crops of grain or grass.

During the first World War, much permanent grassland was plowed and planted to grain crops and the minimum amounts of land needed for hay and pasture were left from year to year in legumes and grasses. The resulting soil depletion and erosion were disastrous. During the present war, the emphasis on maximum food production and the profits from grain production have led again to the plowing of all land not needed for hay and pasture. The profit motive will cause most people to continue to grow maximum acreages of corn, soybeans, and wheat as long as good prices are maintained, unless they are convinced that the total net cash farm income will be approximately as great if they allow part of the land to be occupied by legumes and grasses.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

During the agricultural depression of the twenties and the general depression of the thirties, many farmers again planted more land in grain crops than good soil practice warranted in order that they might obtain the maximum cash income from low priced crops. They did this in order to pay taxes and interest on debts and to try to avoid mortgage foreclosures. In the event of another agricultural depression, it is to be feared that people will again continue to rob the soil in order to pay taxes and interest and to avoid foreclosures unless they can adopt practices that will enable them to so cash in on land in legumes and grasses that the immediate total net farm income will not suffer from their continued use.

Farmers may obtain cash income from legumes and grasses in several ways: First, from increased yields of grain following the growing of legumes and from the soil-and-water-conserving effects of the grass crops on sloping land; second, from harvested seed crops; third, from government cash payments; fourth, from livestock production.

Increased yields of grain. In the long look ahead, the increasing of yields of grain crops due to improved soil fertility is one of the most important means of obtaining cash income from cropland devoted to soil-building legumes such as alfalfa and the biennial and perennial clovers. However, the cash return from land left down in legumes for soil-building purposes only is usually deferred for from three to five years or longer and many tenant farmers and landlords dependent on the year-to-year income from their farms believe that they cannot afford to wait for the income. The result is that they plow the land and raise cash crops. This is unfortunate and unnecessary.

Seed production. Some farmers have harvested sufficient seed from fields left in clover and grass to pay them well for their labor and equipment and the use of their land. The opportunities for obtaining cash income from legumes and grasses from seed production are somewhat limited but are important, especially in areas where clovers produce relatively good yields of seed. In the long look ahead, soil improvement and seed production alone fully justify the devotion of at least twenty-five percent of all tillable, productive land to the growing of soil-building and seed-producing legumes such as sweet, red, alsike, and mammoth clover. It is unfortunate that so many farmers and landowners are unable or unwilling to make the necessary investments in limestone, phosphates, and clover seed and to wait for their cash returns.

Government payments. The history of the Agricultural Adjustment Administration shows that many farmers will apply limestone and phosphates and leave land in soil-conserving crops if they are assured of receiving government cash payments for so doing. While this may be a

sound public policy during an emergency, many are fearful of the long-time effect on people of paying them from public funds for doing what sound business judgment indicates they can well afford to pay for themselves.

Well-managed livestock brings early returns from legumes and grasses. It is the author's belief that the feeding of legumes and grasses to well-managed livestock offers the best practical means of obtaining immediate income from most of the large acreages of them needed for soil fertility maintenance and erosion control. The kind of livestock to be recommended will vary with the proportion of land that is to be occupied by legumes and grasses, the size of the farm, the fertility level of the soil, the markets for livestock products, the amount of available labor, and the ability and inclination of the farm operator.

Different kinds of livestock use different amounts of legumes and grasses. The selection of different kinds of livestock for use on farms with different proportions of the land in grain and grass is illustrated in Chart 1 and Table 1. This analysis is based on the approximate yields of grain, hay, and pasture, and the actual rations used on 1,035 farms enrolled in the Farm Bureau-Farm Management Service in the northern half of Illinois in 1943 and on the labor used on farms enrolled in the cost of production studies of the Department of Agricultural Economics. When making calculations it was assumed that grain was grown in a four-year rotation of (1) corn, (2) corn, (3) oats, (4) alfalfa-clover-grass mixture with

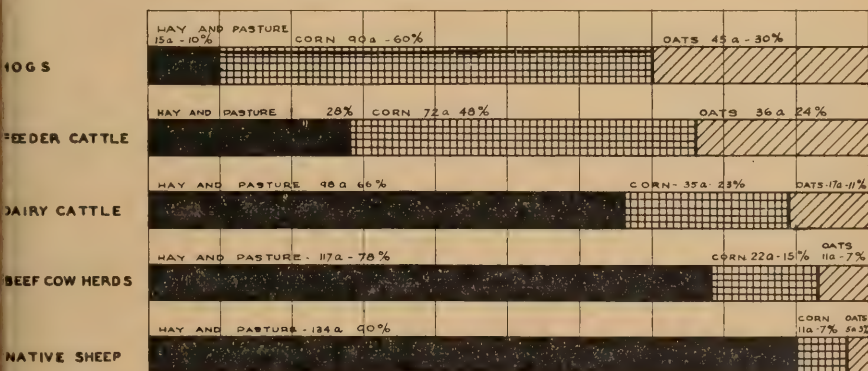


CHART 1.—RELATIVE ACRES OF HAY, PASTURE, AND GRAIN PRODUCED WHEN ALL OF A 160-ACRE FARM IS DEVOTED TO FEED CROPS IN THE PROPORTIONS USED BY THE LIVESTOCK

The data are based on the approximate yields of crops and on the actual rations used on 1,035 Illinois farms enrolled in the Farm Bureau-Farm Management Service in 1943.

TABLE 1.—ACRES OF HAY, PASTURE, AND GRAIN, DAYS OF LABOR REQUIRED, AND THE AMOUNTS OF PRODUCTS PRODUCED WHEN ALL OF A 160-ACRE FARM IS DEVOTED TO FEED CROPS IN PROPORTIONS USED BY THE LIVESTOCK^a

Item	Hogs	Feeder cattle	Dairy cattle	Beef cow herds	Native sheep
Land in hay and pasture					
Acres	15	42	98	117	134
Percent of total	10	28	66	78	90
Land in grain					
Corn—acres	90	72	35	22	11
percent of total	60	48	23	15	7
Oats—acres	45	36	17	11	5
percent of total	30	24	11	7	3
Crop yields					
Corn—bushels	70	75	75	75	75
Oats—bushels	43	52	52	52	52
Hay—tons	3	3	3	3	3
Pasture—days per animal unit	150	150	150	150	150
Amounts of livestock produced					
Total weight—pounds	95,000	45,000	17,000	32,000	25,000 ^b
Total milk—pounds			336,000		
Live weight per acre—pounds	633	300	113	213	167 ^b
Milk per acre—pounds			2,240		
Days of labor required					
On crops	100	100	90	60	35
On livestock	240	120	550	120	185
Total	340	220	640	180	220

^aThe data in Table 1 are based on the approximate yields of crops and the actual rations used on 1,035 Illinois farms enrolled in the Farm Bureau-Farm Management Service in 1943, and the days of labor required is based on data obtained from the cost of production studies conducted on farms in east central Illinois by the Department of Agricultural Economics. It was assumed that only 150 acres of the 160-acre farm were used for the feed crops for the livestock.

^bMutton and wool.

sweet clover seeded as a green manure crop in two-thirds of the oats on the hog farm and that the balance of the land on each farm was maintained in an alfalfa-clover-grass mixture for hay and pasture.

Yields of crops are much higher and feed requirements are lower on farms enrolled in the Farm Bureau-Farm Management Service than they are on the typical farms of northern Illinois. However, the relative yields of grain, hay, and pasture crops, and relative feed requirements of most classes of livestock are approximately the same on well-managed as on the typical farms.

Hogs. Hogs, according to this analysis, would require hay and pasture on only 15 acres, or 10 percent of the 150 acres of farm land on a 160-acre farm of good corn belt land. It should be said that the most efficient hog farms keep a larger than the above amount of land in hay and pasture. Hog farms produce more livestock product per acre than any other class of livestock and require more labor than any other livestock except dairy cattle and poultry. Yields are maintained fairly well on such farms providing sweet clover is seeded in the oats but not as well as on cattle and sheep farms where larger acreages of legumes and grasses are grown and more manure is produced. An all-hog farm is not

recommended for land subject to erosion and is recommended only for the best level corn land.

Purchased feeder cattle. Purchased feeder cattle utilize grain, hay, and pasture in approximately the proportions that are grown in a typical corn belt rotation of corn, corn, oats, and mixed legumes and grass. Farm account records show rather consistently that higher crop yields are obtained on feeder cattle farms than on any other types of farms except the occasional farms where all of the feed is used by dairy cattle or beef cow herds. While feeder cattle produce only about one-half as much live weight as hogs, they may be fully as profitable. This is because of the higher price ordinarily received for fat cattle than for hogs, the increase in price received for the fat cattle over that paid for the feeders, and the smaller amount of labor needed for their production.

Dairy cattle as the sole source of income are adapted to farms where about two-thirds of the land is kept in legumes and grass in order to maintain fertility and control erosion and where there is an abundant labor supply. It is shown in Table 1 that it is necessary to have 66 percent of the land in hay and pasture on the dairy farms and that nearly three times as much labor is required as on feeder cattle farms and twice as much labor as on hog farms. More food is produced on the dairy farms than on feeder cattle farms but not so much as on hog farms.

Beef cow herds and native flocks of sheep. Beef cow herds and native flocks of sheep as the sole sources of income are suitable only for corn belt farms where it is necessary to maintain 80 percent to 90 percent of the farm in hay and pasture. Beef cow herds produce only about two-thirds as much live weight of beef per acre as do feeder cattle when their calves are sold as fat calves or baby beef, as was true in the illustration. It is well to realize also that a larger proportion of the weight put on feeder cattle while they are on corn belt farms is edible food than that of the total weight of calves grown on the farm. Relatively large farms are necessary where the sole income is from beef cow herds or from native flocks of sheep if sufficient income for a good standard of living is to be obtained. Either beef cow herds or native flocks of sheep may well be maintained on hog- or grain-selling farms to utilize the legumes and grasses needed in a good soil maintenance and erosion control program.

Value of forage-consuming livestock demonstrated. The value of forage-consuming livestock on grain-selling farms was fully demonstrated to the author during the fall of 1944 in the grain-farming area of central Illinois where chinch bugs and a severe summer drouth combined to reduce average corn yields to a very low level. While visiting about two hundred farms in six counties those farms that had had some cattle on

them for several years were observed to have very much better yields of corn of far better quality than farms without cattle.

Different kinds of livestock pay about equally well. Different kinds of forage-consuming livestock and poultry will, under average good management, pay about equally well for feed, including hay and pasture, labor, and equipment over a long period of time. While hogs appear to have a slight advantage in profitableness over forage-consuming livestock, they do not provide for as good soil improvement practices and so, in the long look ahead, may have no advantage.

A suggested long-time program. A suggested long-time program for the family-sized farm in any area provides: First, a sound land-use program with sufficient legumes and grasses for soil fertility maintenance and erosion control; second, forage-consuming livestock that will utilize the legumes and grasses not needed for seed production and enough feed grain for optimum production and quality of livestock products; third, hogs, feeder cattle, or feeder sheep to consume surplus feed grains not needed for industrial uses; and fourth, dairy cattle or poultry to make full use of available labor on farms where there is limited grain production.

Changes from grain to livestock farming should be made cautiously. The author wishes to add this final word of caution in regard to changing from the production of grain for sale to livestock production. Farm account records show that in the cash-grain areas year-to-year net farm earnings are about the same on the average grain farms as on livestock farms. There are more hazards in livestock than in grain farming. The most profitable farms are nearly always livestock farms on which the livestock is well managed and the least profitable farms are also livestock farms on which the livestock is poorly managed. If one changes over to livestock production, he may wisely make the change slowly and study carefully the practices recommended by the Experiment Station and followed by the more successful livestock farmers.¹ M. L. MOSHER

FARM BUILDING COSTS

On a group of farms in east central Illinois, where the farm operators kept careful cost records, buildings, including the operator's dwelling, represented one-tenth of the total capital invested in the farm during the ten years 1934-1943. The investment in buildings was \$6,128 per farm; and the average farm contained 269 acres, making the buildings invest-

¹For further discussion of the relative profitableness of livestock and grain farms and related subjects the reader is referred to Illinois Agricultural Experiment Station Bulletin 444, Farm Practices and Their Effects on Farm Earnings, pages 555 to 570, by M. L. Mosher and H. C. M. Case.

ment per acre a little less than \$23. This investment was determined by making an annual appraisal of each building on the farm and averaging these annual appraisals for the ten years. About one-half of the capital in buildings was invested in houses occupied by the farm operator and his hired man (Table 1). Building construction and maintenance, during the ten years 1934-1943, was the third largest cash item of expenditure in the operation of these farms, being exceeded only by cash expenditures on machinery and in the purchase of livestock.

The farms, from which these accurate building figures were gathered, are in the heart of the cash-grain area of Illinois. They carried 8 milk cows and young dairy stock, 11 head of beef cattle (mostly feeder steers), from 40 to 50 hogs, 7 sheep, and about 100 laying hens. Not only was this livestock housed, but 7,500 bushels of grain and about 30 tons of hay were stored on the average farm yearly.

Just what use was made of the buildings on these farms was determined each year by measuring the cubic volume of each used by the different enterprises on the farm—grain, livestock, machinery, etc. The percentage of the total buildings expense represented by each use was then determined. When the figures thus obtained for all buildings were classified according to farm enterprises and then totaled, a basis for weighting expenses by use was obtained (Table 2).

On these east central Illinois farms, in the ten-year period 1934-1943, the annual cost of all farm buildings, for renewals, repairs, depreciation, interest, taxes, and insurance, was \$576 per farm or \$2.14 for each acre of farm land. This yearly expense of \$576 was about one-eighth of the cost of operating the whole farm. The yearly expenses of the business buildings (which were all buildings other than the dwelling of the operator) were \$346 per farm or \$1.29 an acre.

TABLE 1.—INVESTMENT IN BUILDINGS PER 100 ACRES IN THE FARM, COST-ACCOUNTING FARMS IN CHAMPAIGN AND PIATT COUNTIES, ILLINOIS, 1934-1943

Kind of building	Investment per 100 acres
Total investment.....	\$2,277
Operator's dwelling.....	1,009
Business buildings.....	1,268
Barn.....	520
Crib.....	385
Hired man's house.....	97
Machine shed.....	69
Poultry house.....	55
Garage.....	31
Granary.....	25
Hog house.....	24
Milk house.....	3
Other buildings.....	59

TABLE 2.—DISTRIBUTION OF BUILDING EXPENSE ACCORDING TO
USE, COST-ACCOUNTING FARMS IN CHAMPAIGN AND
PIATT COUNTIES, ILLINOIS, 1934-1943

Use of building	Proportion of total expense (percent)
Operator's dwelling.....	40
Grain and feed storage.....	27
Livestock housing and use ^a	16
Machinery storage and service.....	9
Hired man's house.....	5
Other uses.....	3
Total.....	100

^aIncludes concrete feeding floors.

The cost of new buildings and repairs on old buildings is included in the item "replacement and repairs" in Table 3. Attention is drawn to the fact that the cost of replacement and repairs and the cost of farm labor, truck, tractor, and horse labor used in building and in repairing buildings was sufficient to absorb the depreciation and increase the investment in buildings \$46.61 annually per 100 acres. The rate of depreciation, which varied for each building, was influenced by type of construction, severity of use, damage from the elements, and extent of repairs.

The farm operator and his hired men spent from 70 to 75 hours annually in new construction and building repairs. The value of their time at hired man's wages was about 18 percent of the cost of materials and wages paid to skilled carpenters and masons.

Let us look at it in another way to see how much it cost yearly in repairs, replacements, interest, insurance, and labor per \$1,000 of capital invested in buildings. The annual cost on these central Illinois farms was found to be \$96 yearly per \$1,000 investment in buildings. And, as was pointed out above, the buildings were in somewhat better condition at the end of the ten-year period than at the beginning.

TABLE 3.—ANNUAL BUILDING EXPENSE PER 100 ACRES, COST-
ACCOUNTING FARMS IN CHAMPAIGN AND
PIATT COUNTIES, ILLINOIS, 1934-1943

Item	Expense per 100 acres
Replacement and repairs.....	\$115.19
Interest on investment.....	113.79
Farm labor.....	20.60
Insurance.....	10.00
Truck.....	.68
Tractor.....	.40
Horse labor.....	.18
Gross expense.....	\$260.84
Appreciation in buildings (excess of replacements over depreciation)....	46.61
Net expense.....	\$214.23

There were, of course, new buildings built on these farms during the period of this study. Probably there were not as many built as there would have been if wartime building restrictions had not been put into effect. But the yearly expenditure for new buildings amounted to \$58.70 per 100 acres in the farm. The capital expenditure for the building of new corn cribs headed the list, followed rather closely by the capital put into new dwellings for the farm operators, then new barns, new hired man's house, new machine sheds, and on down the list (Table 4).

A building was considered new (1) if it were separate and additional to those already on the farm; and (2) if it replaced another building, even though some of the material in the old building was used. A feeding floor was considered new if it were not added to an old floor. Some of the largest and most costly feeding floors were not a part of new structures, but were additions to floors previously constructed. On a few farms repairs to old feeding floors were included in the contract for enlarging the size of the floor. These cases were not included among the new structures shown in Table 4.

It was seldom possible to separate the cost of building materials from skilled carpenters' and masons' wages. The time spent by the farm operator, members of his family, and hired men in constructing new buildings was recorded. The cost of this labor at average wages for hired farm labor, as well as charges for the farmer's trucks, horses, tractors, and wagons used to haul building material, are a part of "total new buildings" in Table 4.

A record was kept of how new buildings were used from the time they were built until the end of 1943. If we take a composite of all new struc-

TABLE 4.—ANNUAL COST OF NEW BUILDINGS PER 100 ACRES IN THE FARM, COST-ACCOUNTING FARMS IN CHAMPAIGN AND PIATT COUNTIES, ILLINOIS, 1934-1943

Kind	Number built	Average total cost per year	Cash expense for materials and skilled labor
Total new buildings.....	97	\$58.70	\$52.48
Crib.....	11	15.19	14.16
Operator's dwelling.....	3	11.79	10.85
Barn.....	7	8.10	7.02
Hired man's house.....	1	3.59	3.00
Machine shed.....	7	3.22	2.81
Poultry house.....	7	2.67	2.44
Garage.....	10	2.53	2.02
Granary.....	9	2.04	1.85
Feeding floor.....	13	1.99	1.76
Milk house.....	8	1.97	1.70
Hog house.....	2	1.68	1.54
Cattle shed.....	2	.90	.75
Other buildings.....	17	3.03	2.58

25 percent of the famers built new buildings in the 10 years.
 97 new buildings in 306 farm years (about 31 farms, 10 years of record)
 Annual cash farm sales above cash expenses per 100 acres: \$1,705

tures built in the ten years just prior to 1944, it is found that 30 percent of the total were for grain and feed storage, 22 percent for the operator's dwelling, 19 percent for housing livestock and for concrete feeding floors, 14 percent for machinery storage and servicing, 5 percent for the hired man's house, and the remaining 10 percent for miscellaneous purposes, the most important one being for the handling of milk.

The changes that have taken place in farming during recent years such as the change from horses to mechanical power, the change from storing loose hay and straw to baling these crops before they are stored, together with the increased need for saving man labor in and around farm buildings should result in a drastic change in the design of many farm buildings that are going to be built following the war.

It is well to keep in mind that building repair and maintenance are a heavy expense of farm operation. Building expenses can be kept down by fitting buildings to the needs of the farm, and by finding ways and means of constructing buildings well but within the cost limitations dictated by the farmer's ability to make use of them economically. Above all the man who has to live with the buildings and make them pay should be given primary consideration when a new building is designed and built.

R. H. WILCOX

WHAT HAS HAPPENED AND WILL HAPPEN TO LAND VALUES?

Summary and Predictions

1. March 1, 1945, estimates of farm land and buildings per acre in Illinois will probably stand at least 45 percent above those of March 1, 1940. Using the average value of land and buildings for the census of 1940, namely, \$82, and increasing it by 45 percent, could mean an average Illinois figure of \$120 per acre this winter.

2. The United States census of agriculture is collecting results, which, when made known several months later, are likely to show a five-year advance of about 50 percent in average value of Illinois farm land and buildings.

3. In the nine districts of Illinois, it will probably be found that the rates of increase, 1940 to 1945, recorded for the Galesburg and Harrisburg districts will be higher than for the Champaign, Bloomington, and Chicago districts.

4. The amounts of increase in dollars per acre will probably be shown to have been highest in the Champaign, Bloomington, Galesburg, and Chicago districts.

¹Adapted from an address before meeting of Illinois Farm Managers Association, February 8, 1945.

5. The average of the nine districts of Illinois has been the same as for the Galesburg district and the changes in the latter district have been like those in the state as a whole.

6. When the rate of increase over the 12-year period 1933-1945 is computed for Illinois, it will have an average between 9 and 10 percent per annum, a 12-year advance of about 115 percent.

Most of these six short-time predictions are for early 1945 and not much beyond. One may wisely abstain from offering predictions for the next five years. It is probably better to terminate the period of reference with June 30, 1947. That gives us over 29 months. Within this period there will be Terminal Victory 1 and Terminal Victory 2. Predictions applying to the Illinois land market are as follows:

1. There will be an increase in the demand for certain classes of land following each of the terminal victories and this demand may have a high peak if both victories come separated by no more than about eight months.

2. If the year or years that intervene are not drouthy, surpluses of farm products will be active in some lines following Victory 1 and in most lines soon after Victory 2.

3. Sales of Federal bonds will be pushed after Victory 2, not merely by the Federal government promoting new issues, but by holders of existing issues and of issues previously floated. These efforts will take place as prices of non-farm items advance and as a boom market for stock shares or full titles to profitable non-farm enterprises gets under way.

4. Purchasing power of farm income, even with the same yields of crop and with near-parity support prices, will shrink.

5. Plans for pulling out price supports two years after Victory 2 will be opposed by farmers unless postwar production is clipped down with more promptness and more foresight than wartime experience would seem to indicate as likely.

6. Comparative restraint shown in the farm land market has provided a cushion against considerable adversity in yields, costs, and prices receivable for products, but despite these cushions and some probable further advance, land prices will probably be lower by mid-1947.

7. Higher interest rates in the non-farm branch of the economy will be reflected by higher interest rates in the farm credit field, and this will add grease to the toboggan slide for farm land prices.

8. Sustained employment in American cities is a Number 1 goal of all planning, public and private, international and national, and if it is achieved will tend to enable the volume of products taken at acceptable prices from American farms to be kept from falling too far below the wartime peaks.

9. Shrinkage in price per unit, if accompanied by no more than a slight shrinkage in volume of products released for yearly sale, will establish a

stability in American farm land prices in spite of some advance in rates of capitalization.

10. It will be surprising if, in our areas of most inflation, this stability level for land prices so far as realized by 1947, is far from 20 percent below the mid-1945 peak of land prices.

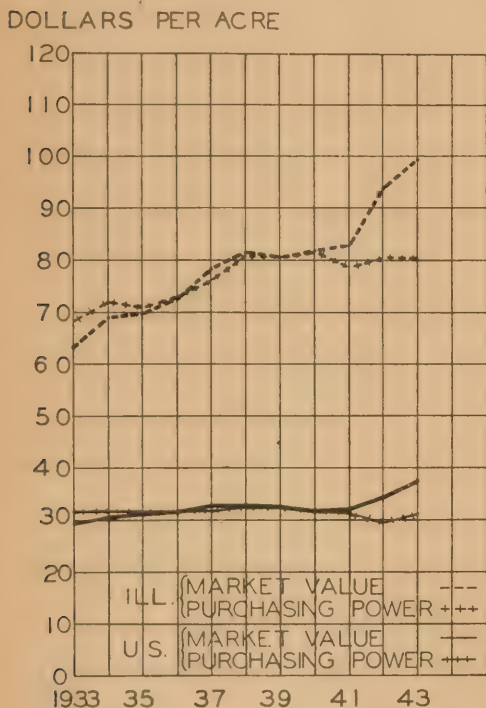


FIG. 1.—FARM LAND: CURRENT PRICES COMPARED WITH PURCHASING POWER, ILLINOIS AND UNITED STATES, 1933-1943

Above are shown (1) estimated annual prices of farm land (buildings included) per acre in current dollars, and (2) the power of said prices to exchange for commodities at wholesale, adjusted to average of current dollar land prices, 1935-1939.

salable products. As shown in Fig. 2 only about 60 bushels of soybeans were required to buy an Illinois acre in 1941-1943, as compared with about 80 bushels in 1933-1935. In other states only about 20 bushels of soybeans were required to buy an average acre. This comparison is somewhat unfair to Illinois because soybeans are an important crop in a larger part of Illinois than they are in the country as a whole.

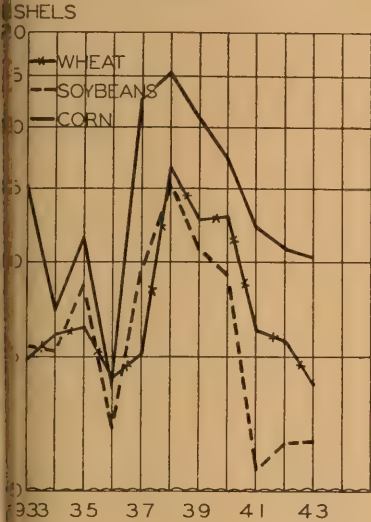
Perhaps the comparison is fairer in the case of corn (Figs. 2 and 3). In

Relationships between prices of farm real estate and commodities. The purchasing power of farm real estate per acre in goods at wholesale has been traced in Fig. 1. It is clear that in Illinois from 1933 to 1940 and especially from 1940 to 1943, the price of land did not go up as much in terms of commodities at wholesale as it had in terms of money. In fact, from 1938 to 1943 in Illinois the average price of an acre held its own against prices of commodities at wholesale. This is somewhat different from what happened in the country as a whole. In the rest of the country the price of farm real estate did not advance sufficiently to hold its own with prices of wholesale goods.

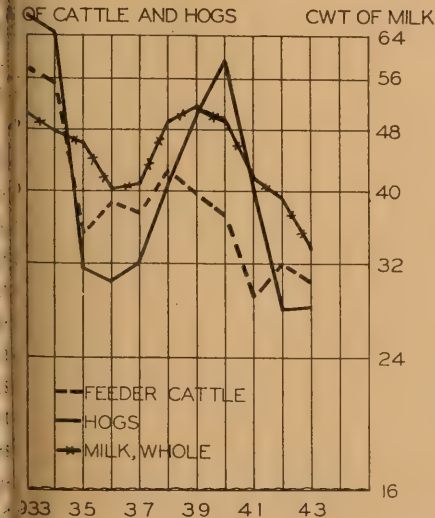
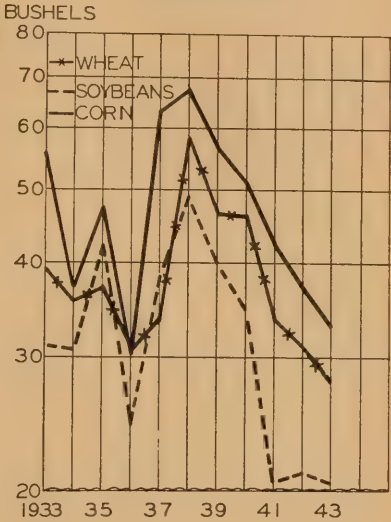
The commodities referred to just now are mainly commodities that farmers, as others, like to buy. Let us consider the relationship of the price of an acre to the price the farmer received from some of his own

1943, 100 bushels were paying for an acre in Illinois, and 35 to 40 bushels paying for an acre in the country as a whole. For corn, 1938 took more bushels to meet the then current price of land than any year included. In wheat, 70 bushels would pay for an acre in Illinois and 28 bushels in the country as a whole. In 1938, the amounts had been twice as high.

ILLINOIS



UNITED STATES



FIGS. 2-5.—QUANTITIES OF SELECTED FARM COMMODITIES REQUIRED TO PAY FOR ONE ACRE OF FARM LAND (BUILDINGS INCLUDED), 1933-1943

An average Illinois acre could be paid for with about 3,400 pounds of milk in 1943 as compared with 5,000 pounds in 1933 (Figs. 4 and 5). The price of land in the country as a whole is such that about 1,200 pounds of milk would pay for an acre in 1943 as compared with over 2,000 in 1933.

As might be expected, hogs were a little more erratic. Seven hundred pounds of hogs, however, would pay for an acre in Illinois in 1943 as compared with 1,600 in 1933. For the Illinois acre to be bought with feeder cattle required about 800 pounds in 1943 as compared with 1,400 pounds in 1933.

For these various animal products, the amounts required in the United States as a whole were lower than in Illinois. The downward trends were more marked than in Illinois. The real question, of course, is: How permanent will these low ratios be?

The P-I-P ratio. Something of a generalized picture of how the amounts received from sale of farm products have stood in relation to the price of real estate is afforded in Fig. 6. Here we divide the value of products into the price of the farm real estate. This products-into-price ratio, or P-I-P ratio, can be thought of in terms of commodities as in the several charts preceding or can be thought of in another way

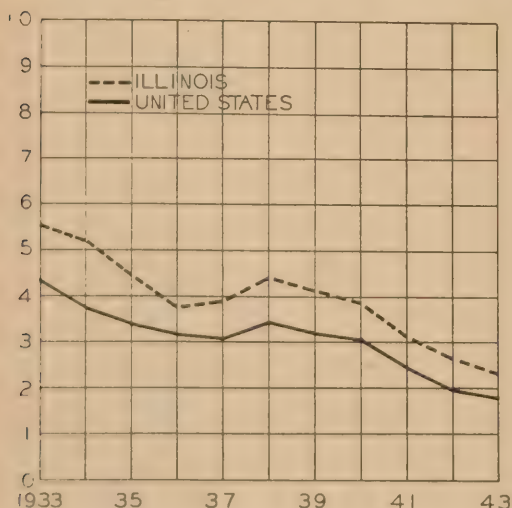


FIG. 6.—ACRES REQUIRED TO PRODUCE ENOUGH GROSS FARM INCOME TO PAY FOR ONE ACRE OF FARM LAND (BUILDINGS INCLUDED), 1933-1943

equally accurate as reflection makes clear. It is not merely a question as to how many bushels or hundredweights will buy an acre. It is a question of how many acres of products one would have to sell in order to pay for an acre. One can wonder whether all the change since 1933 is permanent.

Forces that tend to encourage higher prices. A number of forces will operate in the direction of replacing attitudes of restraint prevailing thus far by attitudes much more optimistic, among which are the following:

1. After land prices have been rising for a period, many buyers come into the land market who might otherwise have stayed out.

2. Owners of farm real estate whose total equities have risen feel that they can take on more land.

3. Increased assets of other kinds, such as livestock and machinery, may tempt tenants and others to buy land when they might build their net worth more rapidly by doing otherwise.

Restraining influences. What are some of the restraining influences apart from recollections of World War I that are now causing our farmers to keep the land market from running away?

1. Many farmers know that as soon as new materials become available and new machinery is on the market, they will need large amounts of cash or cashable items.

2. Many farmers want other things besides, or in addition to, land, such as paid-up insurance protection for old age, more advanced education for children, better household and other labor-aiding facilities, and some enjoyment of goods that can be acquired both on the farm and off the farm.

3. The average age of Illinois farm operators is now the highest in history. Farm machinery is enabling both elderly and very young men and women to get crops planted and harvested amid manpower shortage. Many farmers have kept going with the expectation that they can retire when hostilities are over. Many a younger farmer has cast an eye on a neighboring farm that he suspects will go on sale not too long after final victory.

4. The tax collector stands ready to claim a large share of the profits which a wartime land deal might provide. As compared with 1918, present laws take a larger share of the capital gains of the taxpayers who have net incomes between \$25,000 and \$30,000, but a smaller share from those with higher income.

5. Even where some farmers may have tended to forget the lessons following World War I some of the agricultural lending agencies have maintained resistance to increasing loan limits per acre.

Over and above these five factors, the major factor is the recollection of what happened during and following World War I. This has been of sedative value. A critical situation is reached when considerable masses of farmers begin to feel that things are going to be different this time. Following the Armistice after World War I, farmers spoke of the double prices for products and many expected them to have short persistence. But they persisted for over a year, and during that period many farmers lost their moorings. It is precisely such an impression that history is not going to repeat itself that will probably rise again this spring.

C. L. STEWART

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	187	242	199
1943.....	103	123	166	127	251	243	191	233	316	239
1943 Dec....	103	122	169	130	256	277	213	256	328	241
1944 Jan....	103	122	167	131	260	257	196	254	328	243
Feb.....	104	122	168	132	276	268	203	258	328	244
Mar.....	104	124	170	132	274	288	218	257	324	242
Apr.....	104	123	169	132	270	234	177	258	318	239
May.....	104	123	169	132	276	256	194	260	318	237
June.....	104	125	166	133	275	230	173	262	318	235
July.....	104	124	166	133	252	199	150	262	311	230
Aug.....	104	123	168	133	261	185	139	263	314	232
Sept.....	104	123	166	133	244	196	147	264	313	231
Oct.....	104	123	170	133	262	295	222	268	314	232
Nov.....	104	124	169	134	267	316	236	271	312	232
Dec.....	104	126	170	134	264	...	...	...	...	232

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			Jan. 1944	Current months		
	1935-39	1943	1944		Nov.	Dec.	Jan.
Corn, bu.....	\$.66	\$.98	1.07	1.07	\$.99	\$1.04	\$1.05
Oats, bu.....	.31	.66	.74	.79	.65	.70	.73
Wheat, bu.....	.86	1.43	1.54	1.57	1.56	1.57	1.58
Barley, bu.....	.62	1.00	1.16	1.20	1.13	1.06	1.08
Soybeans, bu.....	.90	1.68	1.91	1.81	2.05	2.05	2.05
Hogs, cwt.....	8.52	14.07	13.47	13.10	13.90	13.70	14.10
Beef cattle, cwt.....	7.88	13.46	13.34	12.80	13.50	13.20	13.50
Lambs, cwt.....	8.36	13.57	13.52	13.60	12.80	13.20	13.40
Milk cows, head.....	58.00	129.25	124.50	126.00	117.00	119.00	119.00
Veal calves, cwt.....	8.66	14.40	13.88	13.90	13.70	13.40	14.00
Sheep, cwt.....	3.58	6.58	5.67	5.90	4.60	5.00	5.40
Butterfat, lb.....	.27	.49	.49	.49	.49	.50	.50
Milk, cwt.....	1.68	2.97	3.02	3.05	3.20	3.15	3.10
Eggs, doz.....	.19	.36	.31	.30	.40	.39	.36
Chickens, lb.....	.15	.24	.24	.23	.24	.24	.24
Wool, lb.....	.25	.42	.42	.43	.43	.44	.43
Apples, bu.....	1.08	2.49	3.11	3.10	2.85	3.10	3.20
Hay, ton.....	9.39	15.11	17.65	19.60	17.90	18.40	19.00
Potatoes, bu.....	.91	1.92	1.83	1.75	1.80	1.85	1.95

¹⁻¹²For sources of data in tables see October issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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INFLATION OR DEFLATION AFTER V-E DAY?

Whatever date may finally be designated as V-E Day it is evident that some of the shifts which we have thought of as accompanying that day are already in progress. Even before the war in Europe is over the Allied successes and the weakening of German resistance have been decisive enough to warrant the beginning of a shift in the application of our military power from Europe to the Pacific. Furthermore, preliminary steps are being taken to cut back armament production and to increase output for civilian use. Although it will be several months before we may expect much easing of civilian goods shortages, it is none too early to face up to the possibilities of what the reconversion period may mean.

One of the most important questions with which we shall deal during reconversion is that of the future of the price level. What is done to affect the price level during the reconversion period will be of major importance in setting the price level for a decade or more following the war. It may be expected to be of great importance in determining the severity of a post-reconversion depression—or of difficulties we shall face in avoiding such a depression.

If we allow a marked further price inflation during reconversion we must expect it to result in a higher level of prices—a lower value of the dollar—than would prevail in the absence of such an inflation. We must expect it to increase the severity of a depression which is likely to come during or soon after the reconversion period—or perhaps to be the "last straw" which would make such a depression inevitable in spite of all our efforts to avoid it through providing for full employment.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

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Price inflation will not be avoided merely by a general agreement that it is undesirable. The problem is much more complicated than that. Whether or not we have inflation will depend upon many decisions: decisions of government officials, of labor leaders, of employers, of bankers, of farm leaders, of all sorts of plain citizens in their capacity as workers and consumers. All too often these decisions will be made without realizing that they have any important bearing upon inflation. Some will be decisions which relate directly to price policy, whether governmental or business policies. Others—most perhaps—will relate only indirectly to prices. They will involve wages, foreign exchange rates, banking policy, tariffs, cartels, antitrust suits and the fiscal policy of the federal government.

Of outstanding importance is the fact that we already have a tremendous credit inflation. This is the underlying force which threatens to culminate in further price inflation. The extent of the credit inflation can be judged roughly by the fact that securities of the federal government held by commercial and Federal Reserve banks increased from 22 billion dollars in June 1941 to 96 billion dollars in December 1944, an increase of 74 billion dollars. In the same period total loans and investments of "all banks" (not including Federal Reserve banks) in the United States increased by 79 billion dollars. Either of these two figures may be taken as a measure of the approximate extent to which the banking system has created credits which the government (or others) may use to purchase goods and services. The effect is substantially the same as though we had instead printed an equal amount of new fiat currency—what we in the United States commonly think of as "greenbacks."

Under conditions when there is no expansion or contraction of either credit or fiat currency, the amount of net income which people (including corporations) receive is just equal to the net value of the goods and services which they produce. Hence buying power is equal in value to production. This balance contributes to price stability in ordinary times.

This fundamental balance is not disturbed if the government sells bonds to people who pay for the bonds out of their income. But when the bonds are bought by Federal Reserve banks or private commercial banks, new purchasing power is created. The government has its bank balance increased without anyone else's bank balance being decreased. Hence in a year when this has happened more purchasing power has come into being than the value of the goods and services produced. Since the government spends most of what it borrows these borrowings have been the basis for a corresponding increase of incomes of individuals—incomes during the year have been more than the value of the goods and services available

for purchase. This is why prices are almost certain to be bid up as a result of credit inflation unless there is some powerful force to prevent.

Credit deflation brings into operation the opposite sort of forces. If the government collects more in taxes than it spends, and uses this surplus to pay off bank loans (or retire bonds held by banks) the spendable income of individuals will be correspondingly reduced—unless, of course, the reduction in bank credit to the government is counterbalanced by an equal increase to private parties.

The great expansion of bank credit to the government during the past four years has not had its full effect upon prices, largely because of the influence of rationing and direct governmental controls over prices and wages. That these controls have been fairly effective is evidenced by the fact that the Bureau of Labor Statistics index of wholesale commodity prices rose only 39 percent from June 1939 to February 1945 compared with 133 percent during the corresponding period of World War I (from 1914 to February 1920). This is in spite of a much greater credit expansion during the current war. Price controls have been much more widespread and effective during the current war than during World War I.

Credit deflation will not be underway as soon as war expenditures start to decline. There will have to be a very great decline of expenditures before they will be reduced to the level of current revenues. Until this point is reached fiscal operations will tend to be inflationary rather than deflationary. Furthermore, the great accumulation of bank deposits constitutes a "backlog" of spending power which may provide the means of counteracting the effects of further credit contraction. If it is to do this, however, the reserves of purchasing power must not be dissipated in a price inflation during reconversion. The ideal situation would be to have the release of the "hoarded" bank deposits and currency occur at the same rate as there is a net credit contraction. This can be attempted either through influencing the rate at which people make use of their accumulated bank deposits and cash, or through the use of fiscal policies and credit controls which will adapt the changes in outstanding bank credit to the desire of people to use their accumulated purchasing power. There may be a combination of the two methods.

Perhaps the best policy in attempting to ward off further price inflation would be for the federal government to approach a balance of income and expenditures as rapidly as possible through maintaining current tax rates until such time as expenditures can be reduced to meet income. In order to prevent further price inflation pending a time when the government debt turns downward, it will presumably be necessary to continue fairly drastic direct price and wage controls including a considerable

amount of consumer goods rationing. Such controls will be necessary in order to prevent inflation through the spending of the accumulated cash and bank balances.

Eventually the public debt will be reduced and by that time or before the price and wage restrictions should be relaxed. The rapidity of such relaxation should depend upon the rate at which outstanding bank credit is contracted as a result of the paying off of the public debt. Such a relaxation is, of course, also desirable in order that the forces of competition may again play their normal role in directing the utilization of our productive resources through adjustments of prices and wage rates.

Whether or not we have further price inflation during the reconversion period will depend largely in the timing of fiscal operations and of changes in price and wage controls. Ideally, proper timing should result in completely avoiding both further inflation and any such depression as occurred in 1920. That depression and decline of price level was brought on primarily by credit contraction.

There are, however, many other related factors which will affect the postwar price level. These include foreign exchange rates, tariffs, banking policy, trade controls, and the general effectiveness of competition. The price levels of the different countries of the world are directly interrelated through international trade. Under conditions of free trade, for example, the price of wheat in importing and exporting countries will differ only by the costs of shipping the wheat from one country to another. Involved in these costs are freight and other handling charges and also the rate at which the money in one country can be exchanged for that of another. These latter are called international exchange rates. Of course, where there are tariffs applied by the importing countries or bounties by the exporting countries, these serve to increase or decrease the price differences between markets in the various countries. If, in addition, there are exchange quotas or export or import quotas, these may tend to result in no systematic relationship between prices of wheat in the importing and exporting countries. Such quotas may consequently result in an almost complete breakdown of any systematic interrelationship of prices between countries. Nevertheless, under what we may term fairly normal international trade relationships, this tendency for prices of individual commodities in the different countries to be "tied" together is a primary reason why the price levels of different countries rise and fall together, so long as there is no substantial change in the foreign exchange rates of the countries. The carrying out of the terms of the Bretton Woods agreement seems likely to result in the re-establishment of a fairly stable relationship between the values of the different currencies and price levels in the different countries of the world.

E. J. WORKING

POSSIBLE USES FOR WARTIME SURPLUS INCOME

War service people who have saved money to buy land and others, young and old, who look forward to land ownership cannot welcome widespread attempts to bid farm realty prices to top-heavy figures. A nation that has bent its back to carry heavy wartime duties and then plans, after no more than a breathing space, to carry equally heavy peacetime responsibilities is more likely to suffer than to gain from inflation of real estate and other capital items. Where farm ownership is made hazardous by rapid up-and-down movements in farm land and building values, the people of the state and nation may wisely keep an eye upon the trend. At the present stage of hostilities, it is important to consider the possible uses of special taxes and other emergency controls to head off a land boom.

The North Central Committee on Land Tenure Research is now issuing a bulletin in the name of twelve midwest states. "Preventing Farm Land Price Inflation in the Midwest" is the title. A wide range of topics pertinent to the subject is discussed in its twenty-seven pages.

Among other things, it gives the background of the land price advances of the 1940s. It compares them with the First World War, noting especially the advance in prices that occurred between the Armistice and May 1920.

Five suggestions in this bulletin deal with the use of wartime surplus income. The things that are brought to attention here require no Act of Congress but are within the reach of any person who wishes to invest money with an eye to the well-being of his family and his own farming future. Increases in income due to wartime conditions, says this bulletin, have created an excess purchasing power which in itself may cause farm land price inflation. Therefore, it is suggested that individuals consider using such surpluses, after debt has been reduced to manageable proportions, for one or more of the following purposes:

- (1) Purchase of war bonds or other securities with future marketable value in order to have financial reserves for use after the war when manpower and materials will be available to make improvements on the farm and provide for the general well-being of the family.

- (2) Invest in paid-up life insurance to be used not only to clear debt of the operator but provide security for the family.

- (3) Outright purchase of annuities or endowment policies for extra protection of the farmer when advanced years are reached or for the education of younger members of the family. Care should be taken, however, not to become obligated for heavier annual payments than can be maintained with reduced farm income.

- (4) Advance payment of future installments of assessments made for drainage, irrigation and other real estate improvements.

(5) Set aside funds to meet future levies of income and property taxes or other fixed charges.

This bulletin, North Central Regional Publication No. 4, was issued at the Iowa Agricultural Experiment Station and Iowa Agricultural Extension Service, Ames. Copies may be had also by writing the Office of Information, College of Agriculture, University of Illinois, Urbana, or similar offices in other sponsoring states.

C. L. STEWART

IT'S PROFITABLE TO FARM ON THE LEVEL

Level farming pays. Comparisons of yields on contoured and noncontoured land on farm account record keeping farms in Illinois showed again in 1944 the wisdom of protecting soil and water resources. For the sixth straight year the farm account records showed that conservation practices such as contour farming, strip cropping, farming with terraces and use of grass waterways aided in saving soil and water resources and in increasing crop yields.¹

Yield increases in 1944. Conservation practices resulted in average increases of 9 percent in yield of corn, of 13 percent for soybeans and oats, and of 15 percent for wheat on 142 farm account keeping farms in 40 Illinois counties in 1944. A summary of the farm account records showed specific yield increases of 4.9 bushels of corn, 2.7 bushels of soybeans, 4.7 bushels of oats, and 3.1 bushels of wheat from contour farming, strip cropping, contour farming with terraces and buffer strips and the use of grass waterways compared with up-and-down hill farming on the same farms (Table 1).

Average results for 6-year period 1939-1944. Effects of specific improved cropping practices vary from year to year according to seasonal conditions. The consistent beneficial effects from the use of conservation practices are shown by a summary of contour farming data from account keeping farms for the past six years. Yield increases for crops grown on the contour compared to farming up and down the slope on the same farms for the six years 1939-1944 were: corn, 7 bushels; soybeans, 2.7 bushels; oats, 6.9 bushels; and wheat, 3.4 bushels (Table 2). The increased production from conservation practices or "around-the-hill" farming for these account keepers was equivalent to their having 12 percent more land in corn, 13 percent more in soybeans and 18 percent more in oats and wheat.

Contour farming tends to reduce costs. In addition to conserving

¹Based on a study carried out cooperatively by the Agricultural Economics Department, University of Illinois, College of Agriculture and Economic Research Division of the Soil Conservation Service, U. S. Department of Agriculture. E. L. Sauer, Project Supervisor.

TABLE 1.—AVERAGE PER ACRE YIELDS OF CROPS GROWN ON THE CONTOUR AND NOT GROWN ON THE CONTOUR ON THE SAME FARM, ILLINOIS, 1944^a

Item	Corn	Soybeans	Oats	Wheat
Number of farms.....	117	19	46	18
Yield on contour (bu.).....	61.1	22.6	40.6	22.9
Yield not on contour (bu.).....	56.2	19.9	35.9	19.8
Number of farms on which crop on contour yielded higher.....	97	16	40	18
Difference in yield in favor of contouring (bu.).....	4.9	2.7	4.7	3.1

^a Based on 142 farm account records from 40 counties.

soil and moisture and increasing yields, contour farming saves fuel and reduces wear and tear on machinery. Results of a study of farms on which all or the major part of the farming operations were on the contour, matched with neighboring farms on which no field operations were on the contour, indicate that for the four years 1940-1943 power and machinery costs were 36 cents per crop acre less and labor costs 84 cents less on the contour-operated farms (Table 3).

Conservation farming not new. While contour farming and other conservation practices to fit the farming pattern to the natural lay of the landscape so as to get the crop rows on the level is relatively new in most of Illinois, it was recognized as desirable by some of our earliest leaders. Thomas Jefferson wrote in 1813 regarding his farm: "We now plow horizontally, following the curvatures of the hills and hollows, on the dead level, however crooked the lines may be. Every furrow thus acts as a reservoir to receive and retain the waters, all of which go to the benefit of the growing plant, instead of running off into the streams. The horses draw much easier on the dead level and it is in fact a conversion of hilly grounds into a plain." The usual up-and-down-hill farming hastens erosion and soil depletion and intensifies the "downs" of the ups and downs of farm income. Farmers who have had experience with conservation practices take as much pride in their level curving rows and fields as they formerly did in their straight up-and-down-hill rows and fields.

Farmers' comments on conservation practices. Typical of the farmers' comments recorded in their 1944 farm account books are the following: "I think the contouring helped save some of the moisture and

TABLE 2.—AVERAGE PER ACRE YIELDS OF CROPS GROWN ON THE CONTOUR AND NOT GROWN ON THE CONTOUR ON THE SAME FARMS, ILLINOIS, 6-YEAR AVERAGE, 1939-1944

Item	Corn	Soybeans	Oats	Wheat
Number of farms.....	104	13	31	18
Yield on contour (bu.).....	65.5	22.8	44.1	22.0
Yield not on contour (bu.).....	58.5	20.1	37.2	18.6
Number of farms on which crop on contour yielded higher.....	82	12	28	17
Difference in yield in favor of contouring (bu.).....	7.0	2.7	6.9	3.4

TABLE 3.—MAN LABOR COSTS AND POWER AND MACHINERY COSTS PER CROP ACRE ON 135 CONTOUR-TILLED FARMS COMPARED WITH 135 FARMS NOT CONTOUR-TILLED, 4-YEAR AVERAGE, 1940-1943

Item	Contour-Tilled	Not Contour-Tilled
Man labor costs.....	\$11.20	\$12.04
Power and machinery costs.....	7.46	7.82

consequently we had a fair crop instead of a crop failure;" "Contour drilling of grain and clover seed saved soil, moisture, seed, and fertilizer and resulted in a better stand;" "Contouring corn is easier than I thought—no more rows up-and-down hill with a little gully between each row for me;" "We contour everything—fertility is too expensive to help it wash away;" "No runoff on contoured corn on moderate slope—yield 100 bu. per acre—considerable runoff on neighbor's corn field not on contour;" "Even poor land does better when contoured;" "Our contoured soybeans in rows were better than rowed beans on level land."

Increase in adoption and use of conservation practices. Just as the "proof of the pudding is in the eating," evidence of the value of conservation practices can be found in the extent of and increase in their use. Thirty percent more account keepers reported the use of contouring and other conservation practices in 1944 than in 1943. Use of conservation practices was reported by account keepers in 52 counties in 1944 compared to only 32 counties in 1943. As evidence that farmers are sold on conservation practices after they use them and see for themselves their benefits, a higher proportion of those using contouring in 1944 had all of their crops on the contour than in 1943. For instance, 97 account keepers planted corn both on and off the contour in 1943, while 36 of these same account keepers had all of their corn on the contour in 1944. In 1943, twenty-four of 39 farmers contouring soybeans had all of their soybeans on the contour, while in 1944, forty-four of 63 account keepers reported all of their soybeans on the contour. Of the account keepers reporting the use of conservation practices, 45 percent had all farming operations on the contour and a complete conservation program in operation in 1944, compared to only 30 percent in 1943.

Efficiency of conservation practices. The farm account record studies of the past six years have definitely measured the effect of the use of conservation practices on sloping land and have shown that it is good business. Conservation practices help to save soil and water resources and increase yields at no extra cost, and have proven their worth in making for more efficient and profitable farm production. The approach of the end of the war and the postwar period, when farm prices are likely

to decline more than farm costs, will make it even more imperative that farmers adopt proven practices that will increase their efficiency of production. Using conservation practices as an integral part of a sound, well-coordinated farm plan makes for efficiency in farming that pays both in war and peace. •

E. L. SAUER

SCHOOL DISTRICT REORGANIZATION IN ILLINOIS— WHAT RURAL PEOPLE SAY

In Illinois we have a state rural education committee. It is a voluntary group of representatives of all state-wide organizations and agencies interested in rural school improvement. It has been meeting quarterly in Springfield since 1938. Last year it extended its organization to 16 area committees following fairly closely the outline of the districts for the Illinois Education Association which covers all parts of the state. At the first series of meetings of these area committees more than 175 people were in attendance. They included 52 farmers and homemakers, 23 county superintendents of schools, 23 farm advisers, 14 home advisers, 9 school teachers, and a few school principals, health officers and college representatives.

The problems discussed in these meetings can be classed under seven headings: (1) Getting and holding teachers, (2) providing adequate and equitable financial help, (3) getting rural people to face up to the need for reorganization, (4) securing the right kind of reorganization, (5) providing adequate transportation, (6) getting supervision and a good school program, and (7) finding the leaders to go ahead in school reorganization.

1. Teachers are hard to get and keep, it was reported, because they face a harder task of teaching in a rural school than in other schools due to adverse living conditions, no janitor service, lack of teaching facilities, few or no friends, disinterested or antagonistic boards, lack of comforts, expense of travel, scope of grades taught, reflection cast upon teaching in a rural school, the four year college requirement which induces most to take training for advanced positions, and little relation between salary and quality of teaching. Hence, to get good teachers in rural schools will require providing better inducements including paying better salaries than in other schools.

2. Rural people are beginning to realize their units of financial support for schools are inadequate, that per capita costs are too high, that assessments aren't equal and that the present taxing system is inadequate.

3. They recognize the chief obstacles to reorganization of rural schools are: Losing control of children through consolidation, adverse

town influences on children, possible increase in cost, sentimental attachment to the local school, possible loss of prestige by present directors, inadequate transportation, and fear of underrepresentation of farmers on new school boards.

4. They recognize too the need for closer articulation between elementary and high schools, for developing administrative districts large enough to equalize educational opportunities for all children, and of making the new schools really rural schools.

5. They reported the need for transporting non-high school as well as high school pupils, for a real program of road improvement, and more adequate state aid for transportation if all pupils needing it are to be transported.

6. They indicated that supervision of rural elementary schools is lacking or at least ineffective, that pupils from rural schools were, in general, inferior in the skills of reading, writing and arithmetic, that health education and protection services were inadequately provided for in rural schools, that little was done to help pupils understand and like rural life, and that the present system of state recognition tends to perpetuate poor schools.

7. They reported that many directors are not qualified for their jobs, that closer cooperation between home and school is needed, and that leaders are lacking who are willing to take hold of reorganizations.

Trends show increased interest in reorganization. The situation and trends as shown by discussion in these meetings were, (1) that the shortage of teachers is serious, and (2) that most present reorganizations are unplanned and uncoordinated. There is a slow unplanned drift toward the closing of small schools.

Though farm people fear loss of control of their schools through consolidation, area committee reports show that present reorganizations leave much control with farmers. Also it was reported that in most cases where a one-room school was closed the parents sent their children to a village in preference to a one-room school.

Improvements suggested by rural people stress reorganization. Members of these 16 committees believe the first improvement needed is to provide proper inducement for reorganization. They also recognized the need to work out specific plans for reorganization. Properly trained teachers with adequate supervision must be provided. A better system of financial support must be worked out. The school curriculum must be improved. Widespread study and discussion of rural school problems must be carried on.

Specific inducements mentioned were:

1. Place half the burden of support on the state since rural areas have half the children, of whom half migrate to other areas.

2. Provide transportation through state aid using good, small busses running them over short routes to good centers with at least four teachers and a janitor.

3. Deny state aid to schools with three teachers or less.

4. Set up by state legislation county and state committees to study rural school situations, make reorganization plans and submit these plans to the people for discussion and vote.

5. Study natural community areas, county by county. Reorganize administratively on the basis of the natural community.

6. Provide legislation for county administrative units for all rural schools outside towns of over 2500 population, or larger community units for all grades with former elementary and high school board members on the new board.

7. Attach non-high school territory to districts to which children would naturally attend.

Other suggestions for improvement included providing properly trained teachers and adequate supervision. The committee suggested having all teachers take basic training in rural life, and providing a provisional certificate for two year students. Special training for rural teachers should include instruction in agriculture, home economics, rural sociology, and agricultural economics, allowing a year of actual teaching after two years of a four year course. Then all teachers should be provided with fundamental instruction in how to organize and teach in a one-room school. Means should be provided to prevent unqualified teachers including those having only training for high school from teaching in rural schools.

Members of the committees suggested also that adequate training for administrators in both elementary and high school fields should be provided. Better recognition should be given to rural teachers and a sound salary system should be provided for the entire school system. The school curriculum would be improved if every school had nine months school. Rural schools should include studies of the rural environment such as of soil conservation, nutrition education, and similar subjects for which laboratory materials are abundant in rural areas.

These committees recommended widespread study and discussion of rural school problems by organizing county councils with PTA, Farm Bureau, Home Bureau, and similar groups represented on the committees, with one representative from each school district in the county. A better understanding of rural school problems and their solution should be provided for rural and city people through general education at the teachers colleges and the University of Illinois. They recommend the continuation of area committees with broad representation with rural teachers, dirt farmers, school board members, farm and home bureau members, farm and home advisers, rural club members, farmer and homemaker organi-

zations, school principals and superintendents, ministers and legislators.

The specific problems requiring further study as outlined by the area committees included:

1. To study and discuss rural school reorganization, including legislation that will encourage reorganization, recommend types of larger administrative districts, how best to increase the size of the units, how best to get each county to work out its own organization plans, and to provide information on county surveys.

2. To work for more adequate school supervision in the office of the county superintendent of schools by showing how rural school supervision is conducted in other states and how Illinois can get a state-wide system.

3. To work on the problem of teacher training and supply, by studying teacher training and adequate teaching materials, studying the problem of emergency certificated teachers, studying teacher education for rural schools, with special attention to cooperation between teacher colleges and the University of Illinois College of Agriculture.

4. To study the problem of transportation; the kind of transportation that will be of greatest benefit to the child.

5. To study the problems of financing rural schools, including all forms of financial support, especially the problems of taxation and the sources of revenue and to examine the township trustee and treasurer system, looking to the possibilities of a county-wide tax or finance unit.

6. To encourage widespread study and discussion.

7. To work for simplification of school laws.

The following materials may be of use to those interested in studying the problem further:

LINDSTROM, D. E., "Manual on Rural School District Reorganization," issued by the Extension Service in Agriculture and Home Economics of the University of Illinois, Urbana.

Report of the Illinois Agricultural Association School Committee, IAA, 608 South Dearborn Street, Chicago.

D. E. LINDSTROM

PRICE INFLATION IN FRANCE

The pathetic picture of the conditions of millions of the urban middle-class workers and half-million unemployed in France was pointed out in a letter received from Professor H. C. M. Case. Professor Case is on leave of absence from the University of Illinois serving with the United Nations Relief and Rehabilitation Administration in London. The evidence of semistarvation, severe inflation and black markets in France was

obtained and reported by one of Professor Case's associates who personally visited the homes of French families to learn the facts. The following quotations are taken from that report.

"What is this 'large part' of the hungry French people? It is millions of the urban middle-class and workers, and the half-million of unemployed. Those who are not hungry are the farmers and their friends, and the thin layer of the rich and near-rich, who can afford to patronize the Black Market.

"During the month I have just spent in France I took every opportunity to visit my former friends and to make enquiries of all working people with whom I came into contact and the stories were the same—'We are hungry.' 'We have bartered practically everything we had of any value in order to get in the Black Market what we could for our children and our parents.'

"To tell a little more of this story of hunger I quote from diary notes covering Sunday, March 4.

I spent the day investigating how the small white collar and working class live. The word to describe their living is 'pathetic.' This applies to food, clothes, homes and medical care. Under homes are included not only the flats and rooms but the total absence of heat, the absence of personal clothes, bed-linen and towels, furniture, and the total absence of what may be termed 'five years of renewal and replacement.' Such people as these are financially incapable of patronizing black markets. Letters from parents in villages from 50/100 kilometers all sing about the same gloomy story: 'We are so sorry not to be able to send you anything from the country; what the farmers have they keep for themselves or sell in the Black Market.' On this point I also quote from a letter received from a woman in the city class (she is a secretary). 'I do hope I shall have another occasion to meet you and had I not been so poor (in ravitaillement) I should have invited you home. Unfortunately I had no tea, no coffee and no wine.' What she really meant was that she had not enough potatoes and bread to share with me. She is now on a trip just outside of Paris to see if she can't get some potatoes, etc. She was driven to buying a little last week in the black market, and was able to get 1 kilo (2.2 lb.) spaghetti at 100 francs (\$2.00) and 1 kilo of dried beans at 75 francs (\$1.50). Such people as myself who are entertained on the 'fat of the land' without being able to ask where the 'fat' comes from, would certainly get the wrong impression of the country if they did not lift the thin coat of veneer and look upon that which is underneath. I have on my desk pictures of two children I know, who look well fed and happy. One sees such children in the park and I have had the opportunity of examining them close. There is no need to go into detail—all I can say is that if they were my children I should have white hair and a broken heart, and probably would be arrested for stealing—and I am no sob sister. Yesterday at luncheon one of the UNRRA people told a story which graphically illustrates the sad condition of great numbers of people. A canteen here, run by two British ladies, has been selling their garage (plate scrappings would perhaps be a better word) to some organization

for pig feeding at a small profit, and they had just received a request from another organization to use this material without costs for human consumption.

"On this particular day (Sunday, March 4), I had the feast meal of the week, where the family put the best foot forward. It was done in gracious French style, including a little menu card with pretty French names which, if presented as evidence, would justify a conclusion that an excellent dinner was had by all. Translating it into simple and homey English this is the way it would read:

Potato Soup (flavoured with a very few leeks, absolutely fatless)

Mashed Potatoes, browned in casserole (no milk or fat)

Dandelion Salad (gathered in the park by the children—no oil—only synthetic vinegar with a suspicion of garlic)

Apple Tart (crust made only of mixed flour, salt and water—no fat of any kind, and the apples very thinly cut and barely covering the bottom of the pan)

Black and Sugarless Coffee (I supplied the coffee. There had been no coffee, tea or chocolate in this house for almost five years.)

"After dinner there were two particularly enlightening remarks—one from the Mother—'I am sorry we couldn't get our weekly meat. We had the points and the money, but there wasn't any meat.' (I understand the weekly meat allowance is 90 grams (3 oz.) per person, which includes bones), and the other remark from the little ten-year-old daughter—'It was a lovely dinner today, but I wonder where Mamma is going to get potatoes for tomorrow.'

"On Monday when I went to the Office I asked every French worker if they had gotten their weekly meat allowance, and every answer was 'No.'"

Prices in 1945 are higher than in 1944, but the extent of inflation in France is illustrated by the following prices in 1944 (Prewar 1939-1941 prices are given in parentheses):

PRICES IN FRANCE, 1944, AND 1939-1941 AVERAGES

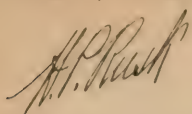
<i>Item</i>	<i>1944</i>		<i>Item</i>	<i>1944</i>	
Suit.....	\$300.00	(\$32.00)	Meat, 2.2 lb.....	\$ 8.00	(\$1.00)
Overcoat.....	300.00	(20.00)	Butter, 2.2 lb.....	16.00	(.60)
Pair of shoes.....	60.00	(5.00)	Sugar, 2.2 lb.....	3.00	(.06)
Shirts.....	13.00	(1.20)	Smoked ham, 2.2 lb...	10.00	(.60)
Hat.....	10.00	(4.00)	Tea, 2.2 lb.....	80.00	(3.00)
Collars.....	.50	(.20)	Potatoes, 2.2 lb.....	.40	(.03)
Tie.....	4.00	(1.20)	One egg.....	.44	(.02)
Pair of socks.....	6.00	(.60)	Macaroni, 2.2 lb.....	4.00	(.08)
Pair of gloves.....	5.00	(2.00)	Coffee, 2.2 lb.....	20.00	(.16)
Soling of shoes.....	7.00	(.80)	One bottle cognac....	10.00	(.90)
Umbrella.....	18.00	(1.20)	One bottle Bordeaux..	4.00	(.24)
Wool (one kilo-gram), 2.2 lb.....	24.00	(.40)	Twenty cigarettes....	2.40	(.10)
One bicycle.....	200.00	(14.00)	Luncheon.....	2.20	(.32)
Toilet soap.....	3.00	(.04)	Chocolate, 2.2 lb.....	16.00	(.40)

Professor Case reports that while wages have increased, that does not help the unemployed and many in the middle class whose incomes have not increased. Conditions in Belgium are comparable to those in France. The sad situation is expected to worsen in the next few months, but after the 1945 home production of vegetables, potatoes, cereals and promised outside supplies arrive, there should be enough food to provide a balanced diet of 2500 calories—provided there is a partial restoration of transportation.

Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	187	245	199
1943.....	103	123	166	127	251	243	191	233	330	239
1944 Mar....	104	124	170	132	274	288	218	257	341	242
Apr.....	104	123	169	132	270	234	177	258	335	239
May.....	104	123	169	132	276	256	194	260	334	236
June.....	104	125	166	133	275	230	173	262	335	235
July.....	104	124	166	133	252	199	150	262	327	230
Aug.....	104	123	168	133	261	185	139	263	330	232
Sept.....	104	123	166	133	244	196	147	264	329	231
Oct.....	104	123	170	133	262	295	222	268	330	232
Nov.....	104	124	169	134	267	314	234	271	327	232
Dec.....	105	126	170	134	264	270	201	276	332	232
1945 Jan....	105	126	173	134	278	239	178	...	330	234
Feb.....	105	127	174	134	310	...	...	...	...	235
Mar.....	105 ¹¹	127	174	135	...	...	...	...	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			March 1944	Current months		
	1935-39	1943	1944		Jan.	Feb.	Mar.
Corn, bu.....	\$.66	\$.98	1.07	1.08	\$1.05	\$1.04	\$1.06
Oats, bu.....	.31	.66	.74	.80	.73	.73	.74
Wheat, bu.....	.86	1.43	1.54	1.58	1.58	1.58	1.58
Barley, bu.....	.62	1.00	1.16	1.23	1.08	1.06	1.06
Soybeans, bu.....	.90	1.68	1.91	1.87	2.05	2.09	2.10
Hogs, cwt.....	8.52	14.07	13.47	13.50	14.10	14.20	14.30
Beef cattle, cwt.....	7.88	13.46	13.34	13.20	13.50	13.70	13.70
Lambs, cwt.....	8.36	13.57	13.52	14.30	13.40	14.20	14.60
Milk cows, head.....	58.00	129.25	124.50	130.00	119.00	125.00	126.00
Veal calves, cwt.....	8.66	14.40	13.88	14.30	14.00	14.10	14.20
Sheep, cwt.....	3.58	6.58	5.67	7.00	5.40	6.20	6.50
Butterfat, lb.....	.27	.49	.49	.49	.50	.49	.49
Milk, cwt.....	1.68	2.97	3.02	3.09	3.10	3.05	3.00
Eggs, doz.....	.19	.36	.31	.30	.36	.31	.31
Chickens, lb.....	.15	.21	.24	.24	.24	.24	.24
Wool, lb.....	.25	.42	.42	.40	.43	.44	.43
Apples, bu.....	1.08	2.49	3.11	3.50	3.20	3.00	3.00
Hay, ton.....	9.39	15.11	17.65	18.60	19.00	20.50	20.00
Potatoes, bu.....	.91	1.92	1.83	1.75	1.95	2.05	2.30

1-12 For sources of data in tables see preceding page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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FARM EARNINGS IN 1944 AND TWELVE-YEAR LIVESTOCK RETURNS

The average cash income for the year 1944 on 1,107 farms enrolled in the Farm Bureau Farm Management Service in the north 37 counties of Illinois was almost exactly the same as for the farms enrolled in 1943, most of which were the same farms; to be exact it was \$18 a farm more. The average cash expense per farm was \$133 more in 1944 than in 1943. The cash balance was, therefore, \$115 less in 1944 than in 1943. There was an average inventory decrease of \$600 a farm in 1944 compared with an inventory gain of \$1,017 a farm in 1943. This was the first year since 1932 that the Farm Bureau Farm Management Service farms have shown average inventory decreases. Increasing inventories since 1932 had been due to increasing prices some years, increasing yields of crops some years, and increasing production of livestock some years.

The farm value of products used on the farm decreased from \$439 a farm in 1943 to \$423 a farm in 1944. The charge for family and operator labor when valued at hired man rates increased from \$1,483 in 1943 to \$1,749 in 1944.

Net farm earnings, calculated by adding to the cash balance the inventory increase, or subtracting the inventory decrease, adding the value of the farm products used in the home, and subtracting the value of the family and operator labor, averaged \$5,931 per farm in 1944. This was \$2,014 less a farm than for the year earlier.

Crop yields. Corn yields were from two bushels per acre less in the northern and central Illinois areas to eleven bushels per acre less in the

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

TABLE 1.—SUMMARY OF THE 1944 FARM BUREAU FARM MANAGEMENT SERVICE RECORDS COMPARED WITH 1943

Item	1944	1943
Number of farms.....	1 107	1 035
Size of farm—total acres.....	254	253
Cash receipts per farm.....	\$18 665	\$18 647
Cash expenses per farm.....	10 808	10 675
Cash balance per farm.....	7 857	7 972
Inventory changes.....	-600	+1 017
Value of farm produce used in home.....	423	439
Farm and family earnings.....	7 680	9 428
Family and operator labor.....	1 749	1 483
Net farm earnings.....	5 931	7 945
Rate earned on farm capital.....	11.51%	15.65%
<i>Crop yields:</i>		
Corn—bushels per acre.....	63	67
Oats—bushels per acre.....	39	41
Wheat—bushels per acre.....	23	21
Soybeans—bushels per acre.....	25	24
<i>Livestock returns per \$100 feed:</i>		
Cattle.....	\$128	\$124
Hogs.....	125	136
Sheep—all sheep.....	109	93
Poultry.....	140	169
<i>Some farm costs per farm:</i>		
Labor.....	\$2 728	\$2 500
Machinery and horses.....	1 920	1 766
Land improvements.....	321	255
Farm buildings.....	530	505

northeast Illinois area in 1944 than in 1943; as an average of all areas corn yields were four bushels per acre less in 1944 than 1943. Oat yields were down about two bushels per acre and wheat and soybean yields were slightly higher in 1944 than in 1943.

Livestock returns. Total earnings as measured by the net earnings per \$100 of capital invested were slightly higher on grain than on livestock farms.

Feeder cattle returned \$107 per \$100 worth of feed fed in 1944 as compared with \$105 per \$100 worth of feed fed in 1943. Since it requires about \$120 returns for each \$100 worth of feed fed to feeder cattle before any profits are realized it would be expected that the feeder cattle farms were less profitable than the farms that sold grain. Feeder cattle farms were less profitable in 1944 and 1943 than farms that sold their grain.

It may be seen in Table 2 that during each of the five years preceding 1943, feeder cattle brought more than the necessary \$120 per \$100 worth of feed in order to make them show profits above the sale of the grain. During each of those five years the average feeder cattle farms did show higher net farm earnings than the grain farms.

Hogs on the accounting farms brought an average of \$125 for each \$100 worth of feed fed in 1944. Other records show that during recent years it required about \$135 returns for each \$100 worth of feed fed to

TABLE 2.—RETURNS PER \$100 FEED FED TO DIFFERENT CLASSES OF LIVESTOCK^a

Year	Beef cow herds ^b	Dairy cow herds	Dual purpose herds	Feeder cattle bought	Native sheep raised ^c	Feeder sheep bought ^c	Hogs	Poul- try	Yearly price of corn
1933.....	\$ 90	\$152	\$112	\$ 97	\$...	\$...	\$128	\$217	\$. 32
1934.....	84	145	118	125	...	...	127	198	.58
1935.....	110	143	141	152	93	163	174	211	.74
1936.....	85	150	109	96	109	101	155	180	.73
1937.....	99	159	116	106	123	50	122	157	.91
1938.....	119	193	151	142	98	153	184	208	.45
1939.....	146	204	162	131	136	136	144	195	.43
1940.....	134	198	173	136	142	149	118	177	.54
1941.....	136	212	162	124	160	122	193	202	.63
1942.....	127	176	151	136	131	147	201	187	.77
1943.....	108	160	118	105	93	108	136	169	.97
1944.....	94	166	120	107	88	136	125	140	1.07
12-year average.....	111	172	136	121	117	127	151	187	.68

^a When the value of feed fed during 1944 was calculated, the grain was priced at the average farm prices for Illinois, reported by the Illinois Cooperative Crop Reporting Service as follows: corn, \$1.07; oats, \$.74; barley, \$1.17; soybeans, \$1.90; rye, \$1.06; wheat, \$1.54. Purchased supplements were priced at cost, and hay, silage, and pasture were priced at farm values in the area. This same method of obtaining the value of land was used each of the 12 years.

^b Calves from some beef cow herds were sold at weaning time, whereas other calves were fed until they weighed 1,000 pounds or more.

^c Average of ten years only.

hogs to pay for the feed, labor, use of equipment, vaccination and other costs. This would indicate that it was not as profitable for the average accounting farmer to feed hogs in 1944 as to sell grain. In fact, the hog farms were less profitable than grain farms in 1944.

Hogs brought an average of \$136 per \$100 feed in 1943 and hog farms were slightly more profitable that year than grain farms. During 1942 and 1941 hogs brought the high returns of \$201 and \$193 respectively for each \$100 worth of feed fed due largely to the relatively high price of hogs as compared with the price of corn. During both years hog farms were much more profitable than grain farms.

Dairy cattle, including subsidies, returned an average of \$166 per \$100 worth of feed fed in 1944. The returns from dairy cattle include the income from the sale of cattle as well as dairy products. While the returns were a little better than in 1943, they were evidently insufficient to pay all costs; during both 1944 and 1943 dairy farms were less profitable than grain selling farms but were about on a par with beef cattle farms. However, during the four preceding years of 1938 to 1941, when the returns per \$100 feed fed to dairy cattle varied from \$193 in 1938 to \$212 in 1941, the dairy farms showed equal or greater profits than grain and beef cattle farms.

Beef cow herds brought returns of only \$94 per \$100 worth of feed fed in 1944. This is the fifth year during the twelve years of 1933 to 1944 when beef cow herds have not paid for their feed. Such a statement appears somewhat misleading because the beef cows have been charged

for all dry roughage and pasture that they consumed at the same rates received in the area for the relatively small amount of hay that was sold or of pasture that was rented out. The fact that much of their feed consists of unsalable roughage that often would not be utilized by other livestock or sold leads one to the conclusion that as an average the farms that had beef cow herds were more profitable than if they had not had such cattle.

Dual purpose cattle are more efficient in converting feed into beef and milk than either dairy or beef cow herds. The farm records have shown for many years that it requires about the same amount of feed to produce 100 pounds live weight of cattle as 1,000 pounds of milk. During six of the seven years of 1938 to 1944 the feed cost per 100 pounds live weight of cattle or 1,000 pounds of milk has been less for dual purpose cattle than for either dairy cattle or beef cow herds. In 1943 the feed cost for dairy cattle was 22 cents per 100 pounds of live weight of cattle or 2.2 cents per 100 pounds of milk less than for dual purpose cattle; in all other years the dual purpose cattle had an advantage of from 12 cents in 1941 to 91 cents in 1942 over dairy cattle. The seven-year average advantage of dual purpose over dairy cattle was 36 cents and over beef cow herds was \$1.40 for each 100 pounds of beef or 1,000 pounds of milk.

This does not prove that dual purpose cattle are the most profitable. Unfortunately for the dual purpose cattle, the quality of beef sold is so much lower than that sold from beef cow herds that any advantage in low feed costs is lost because of the lower selling price of beef produced.

Native flocks of sheep are in a similar position to beef cow herds of cattle. During four of the past ten years they have not paid for their feed when all pasture and dry roughage was charged to them at prevailing market prices for what little feed of those kinds were sold or rented out to others. However, 80 percent or more of their feed is hay and pasture, much of which would not be sold or used by other livestock if there were no sheep on the farm. Considering this condition, native flocks of sheep are undoubtedly profitable even though they may not pay market price for all of the hay and pasture that they use.

Feeder sheep were fed on only a few farms in 1944. They returned \$136 for each \$100 worth of feed consumed on those farms. This meant a nice profit above all feed, labor, use of equipment, and other costs.

Poultry brought returns of only \$140 for each \$100 worth of feed fed in 1944. This was the lowest returns brought by poultry during the twelve years of 1933 to 1944. Returns of \$169 in 1943 were next lowest to 1937 when they averaged \$157 for each \$100 worth of feed fed.

Farm operating costs were up materially in 1944. Labor costs averaged \$228 a farm higher in 1944 than in 1943. The average monthly

TABLE 3.—PRICES OF LIVESTOCK, LIVESTOCK PRODUCTS, CORN, AND LABOR RECEIVED AND PAID BY ACCOUNTING FARMERS DURING FIVE YEARS OF 1941 TO 1944

Item	1941	1942	1943	1944	Percent the average of 1944 and 1943 prices were of 1942 and 1941 prices
Beef cattle per 100 lb.....	\$11.17	\$13.77	\$15.02	\$15.16	121
Hogs per 100 lb.....	9.18	13.47	13.96	13.22	120
Sheep per 100 lb.....	10.51	12.71	14.28	14.39	123
Milk per 100 lb.....	1.90	2.29	2.80 ^a	3.13 ^a	142
Eggs per dozen.....	.25	.31	.38	.33	127
Corn per bushel.....	.63	.77	.97	1.07	146
Labor per month.....	\$60.00	\$76.00	\$101.00	\$118.00	161

^a Includes subsidy.

wages paid on the accounting farms were 61 percent higher in 1943 and 1944 than in 1941 and 1942 (Table 3). Machinery and horse costs were \$154 per farm higher in 1944 than the previous year.

Land improvement costs consisting mostly of limestone, phosphate, and other fertilizers were \$66 a farm higher in 1944 than the year before and farm building costs increased \$25 per farm.

Declining livestock production during 1943 and 1944 has been associated with low prices for livestock and livestock products as compared with the prices of grain and wages of farm labor (Table 3). Feeder cattle brought a fair profit above the cost of feed and labor in 1941 and 1942 (Table 2); however, an average increase of 21 percent in selling price in 1943 and 1944 failed to compensate for an increase of 46 percent in the price of corn and 61 percent in the prices paid for labor (Table 3) and it was natural that feeder cattle failed to move into Illinois feedlots in a large number.

Dairy cattle brought approximately enough to pay for feed and labor in 1941 and 1942. With the help of the subsidy, the 42 percent increase in the average prices received in 1943 and 1944 by the accounting farmers was almost enough to compensate for the increased cost of feed but was not nearly enough to compensate for the increased cost of labor; consequently dairy farms were relatively less profitable in 1943 and 1944.

Poultry income per hen was increased in 1943 and 1944 by a 27 percent increase in the price of eggs over prices received in 1941 and 1942. However, the much greater increase in cost of feed and labor brought poultry to the lowest point in profitableness as compared with other farm enterprises that it has reached in a dozen years.

The prices for hogs received by accounting farms was 20 percent higher in 1943 and 1944 than in 1941 and 1942; however, the 46 percent increase in the price of corn and 61 percent in labor costs made them less profitable. The natural result was to sell the brood sows and sell the corn or keep the corn until the feeding of it would be more profitable.

Livestock farming in the corn belt as a whole has been profitable during the past two years. However, it has been relatively less profitable than grain production and has not paid for the extra labor required. Consequently livestock production has declined.

M. L. MOSHER

FARM ACCOUNT RECORDS POINT THE WAY FOR REPLANNING YOUR FARM BUSINESS

The summary of the 1944 farm account records kept by Illinois farmers shows that while earnings were somewhat less than in 1943 and in 1942, they were still higher than normal levels. Also, the variation in earnings between similar farms was wide, often amounting to several thousand dollars. This extremely wide range in earnings is the result of a number of factors (some uncontrollable), and points the need for a careful study of the financial record of the farm business.

Farm account records are most helpful in studying and replanning the farm business. It is urged that farmers use all the information in their 1944 and previous farm record reports, as well as all other available information, to replan their farm business for the final stages of the war and for peacetime farming. In studying the farm records over a period of years, we find that the following are important in causing variation in earnings: 1. Volume of business; 2. Balance of business; 3. Production rates; 4. Efficiency in use of resources.

How volume of business can be increased. Some of the good measures of volume of business are total gross sales, numbers of livestock, tillable acres and number of months of productive work that the farm provides. The increase in the average size of account keeping farms in some areas and the higher earnings on the larger farms indicate that farmers have found the operating of additional acreage one of the quickest and easiest ways to increase volume of business and earnings during the past few years. However, it was interesting to note that in 1944 one 220-acre farm in Madison County had more than doubled the gross income of another 220-acre farm of comparable soil type. More livestock, a larger proportion of the high value crops, higher crop yields and more efficient livestock accounted for the difference between these two farms. This illustration shows also that volume of business can sometimes be increased without increasing the acreage in the farm. Another illustration of increasing the volume of business is the case of an accounting farm of about 125 acres. In the years 1935-1938, this farm had approximately 30 percent of the tillable land in hay and pasture, milked an average of 10 cows, had 60 to 70 percent of the gross income from livestock and had

a net income of about \$1,600 a year. A complete farm plan was developed, with particular emphasis on soil conservation and improvement and the efficient use of the increased acreage of improved legume hay and pasture by livestock. This farm now has 50 percent of the tillable land in improved legume hay and pasture, is producing 50 percent more pounds of grain on 25 percent fewer acres, an average of 20 cows are being milked, 95 percent of the income is from livestock, and net income, based on 1935-1938 farm prices, has increased by over 40 percent.

Balanced businesses utilize resources economically. Proper land use, including rotations to utilize different grades of cropland, permanent pasture and woods for the non-tillable land; livestock to utilize roughages and other home-grown feeds, as well as a livestock program that utilizes the labor and capabilities of the farm operator and his family throughout the year; machinery and power fitted to the needs of the farm business, and buildings, fences and improvements in line with the system of farming are factors which contribute to a well balanced farm business. In securing a balanced business, the ability and aptitude of the farmer and the capital requirements and availability of capital are important considerations.

The farm records show that a crop and pasture program adapted to the capabilities of the land plus proper soil treatment may increase feed production per acre (grain, hay, and pasture) as much as 100 percent on some farms. The 1944 farm records show as much as 50 percent more feed produced per acre on farms with a well designed land use program compared to neighboring farms with poorly designed programs. In one area of the state, 18 farms that had a complete conservation land use program and utilized available labor in the handling of livestock to convert roughages and other feeds into milk and meat were compared with 18 farms having a complete land use program but not utilizing all available roughage through efficient livestock. In 1944, 18 farms with a "balanced" program averaged 192 acres in size, had 37.3 percent of the tillable land in hay and pasture, milked 16.2 cows, had returns of \$201 per \$100 feed fed, and had net earnings of 17 percent on their investment. The 18 farms not having a completely balanced program averaged 195 acres in size, had 38 percent of their tillable land in hay and pasture, milked 11.7 cows, had returns of \$139 per \$100 feed fed, and net incomes of 5.2 percent on their investment in 1944. While grain farms had somewhat higher earnings on the average than other types in 1944, under existing cost-price relationships, farmers who were able to utilize all their available resources and efficiently convert roughages into salable products found that it paid good dividends.

Production rates are important factor affecting income. Crop yields, pounds of milk per cow, pigs per litter, eggs per hen and other factors cause wide variation in earnings between farms. The extreme variation in production rates found in the farm account records shows the need for careful planning and for the more widespread use of improved practices by account keepers and farmers in general. As an illustration of the effects of improved practices on crop production, Illinois account keepers who contour farmed their sloping land in 1944 had increased yields equivalent to having 9 percent more land in corn, 13 percent more in soybeans and oats and 15 percent more in wheat, compared to farming up and down the hill. The effects of a well coordinated good land use and livestock program on livestock production rates is shown by an account keeper in a dairy area who feeds large amounts of alfalfa hay and alfalfa-clover pasture and had dairy sales in 1944 of approximately \$300 per cow compared to the \$241 average of all account keepers.

Efficiency in use of labor, machinery, equipment, and other resources pays. Too much emphasis can hardly be given to this factor. The farm records show that as the size of the farm increases, the labor and the power and machinery cost per crop acre decreases; but as the amount of feed fed increases, these costs also increase. The records provide illustrations of farmers who have held these costs below the average by carefully planning the size and type of their enterprises and the timing of their work throughout the year so as to utilize efficiently and fully their available labor, power, equipment and other resources. Observations from the account keepers over the years show that thoroughness and the timely carrying out of all operations seldom increase costs and generally increase production rates.

Replanning the Farm

In replanning your farm, you will find it helpful to consider the following:

1. Test and map the entire farm for limestone, phosphate, and potash deficiencies. Then apply the needed materials to both crop and pasture land as they become available and as labor will permit. In many counties, laboratories are set up to do the testing.

2. Redetermine the proper use of each part of your farm for cropland (including rotation hay and pasture), permanent pasture and woods. Then re-establish a cropping system that will maintain fertility and control erosion. Provide for 20 to 50 percent of your tillable land in deep-rooted legumes depending on your soil. Your rotation should rotate. You may check your past record by figuring out for each field the years that the field had good stands of clover or alfalfa over a 10-year period. Two years

for each field is a minimum for the best land and more often for poor land.

3. Proper water disposal and conservation including contour farming, establishing and maintaining grass waterways, terracing, and adequate tile and open ditch drainage are parts of the common problem of securing most efficient land use. Providing an abundant and safe water supply for livestock and home use is also important in farm planning.

4. Adjust your livestock program to any increased production of roughages and in accordance with your aptitude in handling livestock. Your records are a safe guide. What do the thermometer charts show for your livestock?

5. Your buildings may need to be remodeled or replaced when materials and labor become available. On many farms there are obsolete buildings such as horse barns which might easily be converted into machine sheds, feeding barns, or poultry houses. Our building needs are changing rapidly. You may be able to rearrange your farmstead for convenience and attractiveness.

6. Provide for the economical use of your machinery. The records show a wide variation in machinery cost for similar farms. Some co-operators have kept down their net costs by doing custom work. This activity may become less profitable when up-to-date machinery becomes more plentiful. A good plan is to keep your machinery investments and expenses in balance with your farm business. Your records will show how your investments and costs compare with similar farms.

7. More labor may be available during the postwar period but it will probably not be plentiful. Some veterans will want to return to the farm. Suggestions for giving them a start may be found in Circular 587, "Father-Son Farm Business Agreements."

8. Combine your enterprises to give balance to your business as a whole. Test out the plan, using the procedure which is outlined on pages 16 and 17 of the blue booklet "Planning the Farm Business."

Frequent adjustments needed. After you have revised your long-time plan for the postwar period you may wisely make minor adjustments from year to year in the light of changing conditions as indicated in the agricultural outlook. In addition, you may well supplement your long-time plan with day-to-day job planning. Farm account records and your knowledge of your farm put you in an excellent position to do your own planning.

E. L. SAUER and J. B. CUNNINGHAM¹

¹E. L. Sauer, Project Supervisor, Research, Economics of Soil Conservation, Soil Conservation Service, United States Department of Agriculture and Department of Agricultural Economics, University of Illinois, cooperating, and J. B. Cunningham, Associate Professor of Farm Management Extension, Department of Agricultural Economics, University of Illinois, Urbana, Illinois.

TARIFF REDUCTIONS ON AGRICULTURAL PRODUCTS UNDER THE TRADE AGREEMENT PROGRAM

Recently the Trade Agreement Act has been extended. Until 1934 import duties were fixed by Congress, although prior to that year the Congress had authorized the President to make changes in duties under the so-called flexible tariff provision. In 1934 the Trade Agreement Act was passed, authorizing the executive branch of the government to negotiate reciprocal trade agreements with various foreign countries. This authority has been extended from time to time. Under the 1934 Act, the President could proclaim reductions of 50 percent in import duties in connection with any trade agreement. Under the 1945 Act, he may proclaim a further reduction of 50 percent in connection with future trade agreements. In effect the procedure authorized by this law has shifted the responsibility for determining specific rates of import duty from the legislative to the executive branch of our national government, at least during the period for which Congress grants the authority. One effect of this is to make tariff-making a matter of negotiation with foreign countries rather than a matter of "horse-trading" among members of Congress.

What effect have the reductions under these acts had on import duties, i.e., on the amount of the tariff, as it is commonly called? To determine the relative levels of import duties at different dates is not an easy matter, because with specific rates, the percentages to value shift up and down with changes in price levels.

The average equivalent ad valorem rates for selected years may, however, be of some interest.

The following data are from reports of the U. S. Tariff Commission:

Year	Tariff law	Total imports	Equivalent ad valorem rates ^a		
			Percent free of duty	On dutiable goods	On both free and dutiable goods
		<i>million</i>		<i>percent</i>	<i>percent</i>
1912	Payne-Aldrich.....	\$1,641	53.7	40.2	18.6
1915	Underwood.....	1,648	62.7	33.4	12.5
1928	Fordney-McCumber.....	4,078	95.7	38.8	13.3
1934	Hawley-Smoot.....	1,636	60.6	46.7	18.4
1939	Hawley-Smoot ^a	2,276	61.4	37.3	14.4
1943	Hawley-Smoot ^a	3,381	64.5	32.6	11.6

^a Modified by certain trade agreements in effect.

Did the trade agreements result in lower rates? The question is partially answered by the reduction from 46.7 percent in average rate on dutiable goods in 1934 to an average of 37.3 percent in 1939 although a part of this decline reflected the somewhat higher price level in 1939. Note

	Original rate	Modified rate
Cattle, 200-699 lbs.....	2½¢ per lb.	1½¢ per lb. ^a
Cattle, 700 lbs. or more:		
Dairy cows.....	3¢ per lb.	1½¢ per lb. ^a
Other.....	3¢ per lb.	1½¢ per lb. ^a
Swine.....	2¢ per lb.	1¢ per lb.
Pork, fresh or chilled, but not frozen.....	2½¢ per lb.	1¼¢ per lb.
Whole milk.....	6½¢ per gal.	3¼¢ per gal. ^b
Cheese, cheddar.....	7¢ per lb. but not less than 35% of value	4¢ per lb. but not less than 25% of value
Chickens, live.....	8¢ per lb.	4¢ per lb.
Eggs (shell).....	10¢ per doz.	5¢ per doz.
Oats.....	16¢ per bu.	8¢ per bu.
Soybean oil cake and meal.....	\$6 per ton	\$4 per ton
Apples, green or ripe.....	25¢ per bu.	15¢ per bu.
Alfalfa seed.....	8¢ per lb.	4¢ per lb.
Red clover seed.....	8¢ per lb.	4¢ per lb.
Sweet clover seed.....	4¢ per lb.	2¢ per lb.
Broom corn.....	\$20 per ton	\$10 per ton
Hay.....	\$5 per ton	\$2.50 per ton

^a At times these have applied only to specified quotas.

^b Applies to imports of not in excess of 3 million gallons annually.

that in each of the specified years except 1912, 60 percent or more of our imports were free of import duty.

The increase in equivalent rates between 1928 and 1934 reflects in part the decline in prices between these years. Likewise, the decrease in equivalent rates between 1939 and 1943 reflects in part the rise in prices.

The increase in imports in 1939 over 1934 reflected better business conditions in this country and the large increase in imports in 1943 over 1939 reflected the stimulus of the war. But note that even in wartime our imports did not get back to the level of the 1920s when for five years our annual imports exceeded four billion dollars. To a large extent imports into this country are a function of prosperity here. The greatest contribution we can make to the export trade of foreign countries is to maintain good economic conditions in this country. In good times we import large volumes of raw materials as well as of luxury goods, but we sharply cut imports when times are bad.

It is worth noting that going back to 1870, or for seventy-five years, in only nine years did average duties on dutiable goods average as low as they did in 1943. They were as low from 1916 to 1921 and from 1942 to 1944, both inclusive.

Specific changes in import duties on selected agricultural products are shown above. This list is not inclusive and is intended only to illustrate the kinds of changes that have been made. (These are taken from U. S. Tariff Commission publication, "Changes in Import Duties Since 1930," issued February 1, 1943, and supplement to same issued July 1, 1944.)

Notice that many of the reductions were 50 percent, the maximum permitted under the Act of 1934. Under the new Act, the duty may be

further reduced by 50 percent when new trade agreements are negotiated. Thus the duty on eggs which was reduced from 10 cents to 5 cents per dozen as a result of the agreement with Canada may be reduced to 2½ cents per dozen in a new agreement.

Economic history suggests that, if prosperous conditions prevail in the United States, there will be little complaint about lower import duties; but when depression comes again, there will be renewed agitation for upward revision in the rates.

Since World War I this country has been a creditor nation; other people have owed us more than we owed them. In spite of heavy spendings abroad in connection with this war, we are still in the same basic creditor position. Many of our industries desire to sell goods abroad. We have huge capital resources to lend abroad if safe places can be found for them. But to expect payment from goods exported or returns from our overseas debts or investments, we must be willing to take back goods or services from other countries. Reduced import duties established in the trade agreements, as well as further reductions made under the 1945 Act, will make it easier for foreign people to buy our goods or pay debts here. This process will not establish free trade but is a step toward freer trade. However, we must bear in mind that not only a proper level of import duties but also prosperity here is basic to a high level of imports into this country. Many things in addition to the level of import duties will determine the level of prosperity achieved here.

L. J. NORTON

DAIRY PRODUCT MANUFACTURE IN ILLINOIS

The production of creamery butter, cheese, evaporated and condensed milk, and ice cream in different areas of the state and the variation in output among plants producing each of these products are summarized in this article. The location of the plants is shown in Fig. 1 and statistics of production by size of plant and geographical location are given in Tables 1 and 2. The data were secured through the courtesy of the Illinois Co-operative Crop Reporting Service.

Creamery butter. More milk is required for the production of butter than for any dairy product manufactured in Illinois. The whole milk equivalent of the butter manufactured in 1943 was equal to nearly one-fourth the total milk production on farms.

The large creameries dominate the butter industry in Illinois; 23 of them, each producing over a million pounds of butter, accounted for 70 percent of the total production in 1943. Nearly all of the crop reporting districts of the state have located within them one or more of these plants. At the other extreme were 50 plants (one-third of the total number), each

TABLE 1.—DISTRIBUTION OF PRODUCTION PER PLANT OF BUTTER, CHEESE, ICE CREAM, AND CONDENSED MILK, ILLINOIS, 1943

Range in Production	Number of Plants	Total Production	Percent of Total Production	Range in Production	Number of Plants	Total Production	Percent of Total Production
CREAMERY BUTTER				CHEESE			
(Thousand pounds)		lbs.		(Thousand pounds)		lbs.	
Under 10.....	25	89 452	.1	Under 50.....	10	160 110	.2
10 to 49.....	25	635 087	.9	50 to 149.....	19	1 828 038	2.6
50 to 99.....	15	1 075 817	1.5	150 to 249.....	29	5 364 277	7.7
100 to 299....	33	6 223 278	8.6	250 to 349.....	16	4 726 578	6.8
300 to 499....	19	7 614 947	10.6	350 to 449.....	26	12 464 609	17.9
500 to 999....	10	6 249 798	8.7	450 to 549.....	16	12 610 280	18.1
1 000 to 1 999	14	20 275 931	28.1	550 to 649.....	12	13 782 101	19.7
2 000 to 5 499	9	30 000 490	41.5	650 to 1 449..	10	18 809 058	27.0
STATE.....	150	72 164 800	100.0	STATE.....	138	69 745 051	100.0
ICE CREAM				EVAPORATED AND CONDENSED MILK			
(Thousand gallons)		gals.		(Thousand pounds)		lbs.	
Under 10.....	1 030	3 287 800	13.1	Under 750.....	10	1 400 191	.5
10 to 24.....	45	714 900	2.9	750 to 1 499..	5	6 240 446	2.3
25 to 49.....	38	1 278 700	5.1	1 500 to 7 499.	5	21 709 307	8.0
50 to 99.....	31	2 191 300	8.8	7 500 to 19 999	6	74 598 593	27.4
100 to 199....	26	3 917 300	15.7	20 000 to 39 999	6	168 250 854	61.8
200 to 399....	13	3 703 300	14.8	STATE.....	32	272 199 391	100.0
400 to 699....	6	3 366 100	13.5				
700 to 1 999..	5	6 549 600	26.1				
STATE.....	1 194	25 009 000	100.0				

producing less than 50,000 pounds of butter, and together producing just one percent of the state output. Forty-eight of these 50 plants received milk, and butter production was merely a minor enterprise for them. From the standpoint of numbers, plants producing from 100,000 to 300,000 pounds of butter annually also comprise an important group.

Plants manufacturing butter are located in all areas of the state, though nearly half of them are in the Northeast and Northwest districts. In these two districts the average production per plant is below the state average because many milk plants producing a small quantity of butter are located there. However, several creameries producing over a million pounds are also located there, and the Northeast district alone accounted for one-fifth of the 1943 state production. Total production in each of the Northwest, West, West Southwest, Central and East crop reporting districts was similar in 1943.

The production per plant averaged highest in the West district, followed in order by the Central and East districts. A much smaller proportion of plants with a low output operate in these three districts than in the two northern districts.

The amount of butter produced in the East Southeast, Southeast and Southwest districts was distinctly lower than in the other districts, even though the amount of butterfat sold by farmers in many counties of these three districts is as great as in several other counties of the state (see

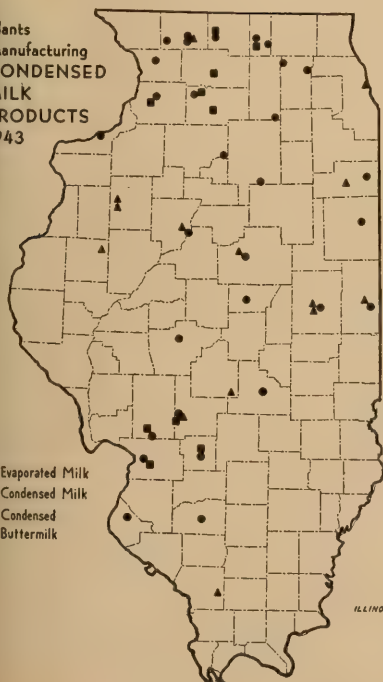
Plants
Manufacturing
ICE CREAM
1943



Plants
Manufacturing
BUTTER
1943



Plants
Manufacturing
CONDENSED
MILK
PRODUCTS
1943



Plants
Manufacturing
CHEESE
1943



- Evaporated Milk
- Condensed Milk
- ▲ Condensed Buttermilk

ILLINOIS COOPERATIVE CROP REPORTING SERVICE

FIG. 1.—LOCATION OF PLANTS PRODUCING MANUFACTURED DAIRY PRODUCTS IN ILLINOIS

produced in each of the Northeast, West, West Southwest, East and East Southeast districts, with production relatively unimportant in the two southern districts. In the latter area most of the milk marketed is required for fluid use, and outside of the St. Louis milkshed the density of milk production is the lowest in the state.

The average production per plant was greatest in the West Southwest and East Southeast districts; it is a significant point that the origin of plants in these districts has occurred more recently than in the districts to the north. Although several of the largest plants are located in the Northwest district, the existence of many small units there results in a low average production per plant.

Evaporated and condensed milk. The whole milk equivalent of the evaporated and condensed milk produced in 1943 was about 11 percent of total milk production. Large units characterize the production of this dairy product; the six largest plants produced over 60 percent of the production, and the 12 largest accounted for nearly 90 percent of Illinois' output. To illustrate the tremendous volume of milk handled by these plants, the six largest received a supply of milk in 1943 sufficient to furnish a pint of fluid milk daily to 930,000 people for the entire year.

The 11 plants in the Northwest district produced nearly 60 percent of the state's 1943 output of evaporated and condensed milk. Another important group of condenseries in the West Southwest and Southwest districts produced 21 percent of the output, while six condenseries in the Northeast district made 14 percent of the total.

The average output per plant was greatest in the Northwest district. All of the eight plants located in the East, Central, and East Southeast districts handled milk for fluid use as well as for condensing; this fact, along with the lower density of milk production in this area as compared with the important condensery areas, explains why the average production of evaporated and condensed milk per plant was much lower than in other districts.

Ice cream is the fourth most important dairy product manufactured in Illinois, based on the amount of whole milk equivalent required in its production. This amount was equal to between six and seven percent of the 1943 Illinois milk production. On a value basis, the wholesale value of ice cream usually exceeds that of cheese.

In 1943 ice cream was produced in 1,194 plants in Illinois, by far more plants than for any other manufactured dairy product. Again concentration of production is noted, with the five largest ice cream plants producing 26 percent of the 1943 output, and the 24 largest, 54 percent of the total. Nevertheless, the large number of plants producing less than 10,000

gallons are an important element in the ice cream industry, for such plants accounted for 13 percent of the output. Of the 1,030 smallest plants, 979 classified as counter freezers have not been indicated on Fig. 1.

The Northeast district produced more ice cream than all the remaining districts combined; reasons are the concentration of population in this area, the large quantity of milk produced, and the cost of shipping ice cream long distances. The Central district ranks second in importance, followed by the Northwest district. The existence of several very large producers in Chicago accounts for the average output per plant being highest in the Northeast district.

Summary. This study indicates that plants equipped to manufacture milk and cream not needed for fluid purposes are located in nearly all areas of the state. The Northeast district, the area with the largest fluid milk markets and most dense milk production on farms is also a leader in the production of the most important manufactured products. The importance in the dairy manufacturing industry of a relatively small number of large plants is shown by the fact that they account for over half the production of butter, condensed and evaporated milk, ice cream and cheese. However, the large number of small plants that also produce each of these products indicates that such plants play a necessary and vital part in the state's dairy industry. R. J. MUTTI

OUTLOOK FOR INTEREST RATES AND FOR LAND VALUES

Rates of return on capital used in agriculture have been so high and loan funds accumulated by savers in agriculture and other lines have been so abundant that farm interest rates have reached a historic low point. Increase in United States currency, in demand and time deposits in banks, and in United States securities has helped to make very high the degree of liquidity in the resources of the citizens of Illinois and other states.

Some students of international capital markets insist that the war-created pool of accumulated funds has come to stay. One can doubt this.

Much of the accumulation of liquid resources has resulted from the growth of government debt in the 1940s. This government debt is not likely to be paid with speed. In fact, the ratio of available savings to developing needs for fresh capital in the later 1940s and early 1950s can be so small that farmers may find the rates of interest on borrowed capital higher than at present. This effect may serve to keep land prices from being written up as much as they would be otherwise.

Some hold that only by special taxes or priorities can these liquid resources, now mountain-high, be prevented from causing an inflation in

the prices of commodities and in the prices of real estate and securities. Restriction of credits for the purchase of real estate and securities has recently been proposed in high Federal circles. A British writer in *Baron's* weekly has urged a general priorities system to apply apparently both to commodities and to capital items.

Citizens of the United States have been especially effective in pouring together liquid resources. They did it under a five-fold set of conditions. These are (a) government underwriting of the whole field of production pertinent to the war; (b) patriotic devotion deepened by casualties among relatives and acquaintances; (c) actual and threatened government coercion of workers and of owners of properties; (d) participation in many fields by new workers, including many older and younger; and (e) a high rate of new investment in facilities with little regard to their convertibility to post-war uses. Results of these influences were high and steady wage rates, practically full employment, and high profits from business ventures. Many types of goods have not been available from retailers, and many alternative investments have not paid markedly higher rates of return than government bonds. Many of the dollars not absorbed by taxes have been put into government bonds directly by the income receiver or indirectly as a result of his dealings with life insurance companies and banks. A result has been that out of the first \$275 billions paid out for the war by the United States 55 percent was financed by bond sales, the campaigns accounting for \$8 billions in the first case and well beyond \$20 billions from the fifth to the seventh. War-connected outlays will require other twenty-billion or teen-billion drives after Japan collapses.

Readjustments as the nations leave the war behind and as they enter the peace vista will make the later 1940s a period not of three Rs but of several times three Rs, namely, return of armed forces; rehabilitation of personnel; readjustment of compensation of personnel; retooling and reconversion of industrial plants; reconstruction of war-torn foreign areas essential to our post-war economy; reconditioning of our own structures for business and living; refunding of Federal and other maturing indebtedness; and rebalancing of our production-consumption budget so as to include advantages in living made possible by the new techniques in healing, prevention, transportation and a hundred other fields.

All of these phases of the multiple-R period will have effects upon the values in the old capital structure and upon the ratio of savings to incomes while the new capital structure is being built. The economy of peace is a whole new venture for us, and many who guess what will go big will experience capital losses beyond those of wartime. Too frantic an effort to get away from low returns on capital will lead to much capital wastage. Retooling and reconversion in some plants will lead to producing old

models which will fail of markets, requiring further retooling in prompt aftermath. The fight to turn in securities of the Federal government for purchase of commodities, even "production goods" in some cases, may have to be rationed to prevent adverse effects upon the general economy.

All of the casualties of war were not suffered where the enemy fire reached. A reappraisal of our natural resources will give the nation a cold dash. Ore resources, petroleum resources, soil resources have all suffered. By substitution or by restoration, where practicable, the nation will go ahead on a new basis of use of natural resources. Capital will be needed to effect these readjustments.

The rates that will prevail on capital at home reflect the total world situation just as exportable surpluses of farm or other products reflect the world market. Rehabilitation of war-torn countries under such auspices as the United Nations may provide is necessary, not to show mercy, but to allay economic paralysis in a vital part of the world economy. Failure to re-establish demand for goods from overseas will be like cutting off the nose to spite the face. Passion may suggest this, but reason rules in another direction. To rebuild economic plants in Europe and Asia will absorb capital from the general pool to which this country and some others will contribute.

Five years and more of the greatest destruction modern men have visited upon armies, fleets, civic personnel and facilities have not left the world richer. Capital generated in the few countries so placed as to produce it must go where needed.

The total of the demands will be so great, in the opinion of the writer, that within less than five years rates will have to be raised to induce people to save. Those who pay very high prices for long-time productive properties on the theory that low rates of return will be the rule for ten years or longer, are probably making a mistake.

C. L. STEWART

Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	187	245	199
1943.....	103	123	166	127	251	243	191	233	330	239
1944 May...	104	123	169	132	276	256	194	260	334	236
June.....	104	125	166	133	275	230	173	262	335	235
July.....	104	124	166	133	252	199	150	262	327	230
Aug.....	104	123	168	133	261	185	139	263	330	232
Sept.....	104	123	166	133	244	196	147	264	329	231
Oct.....	104	123	170	133	262	295	222	268	330	232
Nov.....	104	124	169	134	267	314	234	271	327	232
Dec.....	105	126	170	134	264	270	201	276	332	232
1945 Jan...	105	126	173	134	278	239	178	273	330	234
Feb.....	105	127	174	134	312	226	169	275	329	235
Mar.....	105	127	174	135	294	249	184	275	326	235
Apr.....	106 ¹¹	129	174	135	292	...	...	...	317	231
May.....	106 ¹¹	130	174	135	...	...	...	...	...	227

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			June 1944	Current months		
	1935-39	1943	1944		Apr.	May	June
Corn, bu.....	\$.66	\$.98	1.07	1.08	\$1.06	\$1.07	\$1.08
Oats, bu.....	.31	.66	.74	.80	.69	.67	.67
Wheat, bu.....	.86	1.43	1.54	1.55	1.58	1.58	1.59
Barley, bu.....	.62	1.00	1.16	1.18	1.06	1.07	1.10
Soybeans, bu.....	.90	1.68	1.91	1.88	2.10	2.10	2.10
Hogs, cwt.....	8.52	14.07	13.47	12.90	14.30	14.30	14.30
Beef cattle, cwt.....	7.88	13.46	13.34	13.40	14.00	14.00	14.10
Lambs, cwt.....	8.36	13.57	13.52	14.00	14.60	14.00	14.10
Milk cows, head.....	58.00	129.25	124.50	129.00	123.00	123.00	125.00
Veal calves, cwt.....	8.66	14.40	13.88	14.10	14.60	14.60	14.60
Sheep, cwt.....	3.58	6.58	5.67	6.30	7.30	7.10	7.00
Butterfat, lb.....	.27	.49	.49	.48	.49	.48	.48
Milk, cwt.....	1.68	2.97	3.02	2.85	2.90	2.85	2.80
Eggs, doz.....	.19	.36	.31	.27	.31	.31	.32
Chickens, lb.....	.15	.24	.24	.23	.25	.25	.26
Wool, lb.....	.25	.42	.42	.42	.41	.40	.40
Apples, bu.....	1.08	2.49	3.11	3.00	2.65	2.80	3.00
Hay, ton.....	9.39	15.11	17.65	17.20	18.50	19.30	18.30
Potatoes, bu.....	.91	1.92	1.83	1.85	2.30	2.30	2.55

¹⁻¹²For sources of data in tables see preceding page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

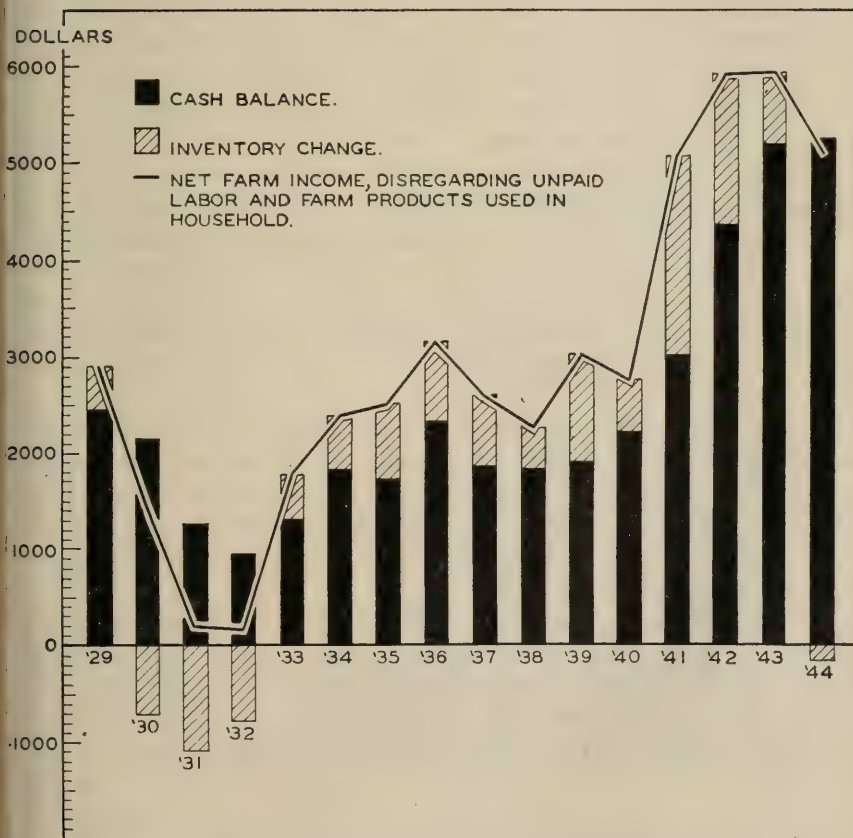
College of Agriculture • University of Illinois • Department of Agricultural Economics

G. L. Jordan, Editor

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Number 122-123

Summary of Annual Farm Business Reports of 2,767 Illinois Farms For the Year 1944



Cash Balance and Inventory Change, Illinois, 1929 Through 1944

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

FOREWORD

This is the fourth annual summary of farm business reports from farms of farm account cooperators published in the *Illinois Farm Economics*. Similar reports for previous years beginning in 1924 are published in the annual reports of the Agricultural Experiment Station.

This issue of *Illinois Farm Economics* is devoted to an analysis of 2,767 farm records which were kept throughout Illinois during 1944. It also includes some comparisons of earnings for 1944 with those of previous years.

Illinois farmers have cooperated with the University of Illinois in keeping financial and production records of their farms for more than 25 years. These records have become more useful as more and more farmers have kept them and as they have been continued over a longer period of years. The greatest value of these records is in helping farmers who keep them to study their own business. As the records are kept over a period of years, they provide a basis for making changes which improve the farm earnings. They also enable each individual to compare his farming operations with those of others who are farming under similar conditions.

The Illinois Farm Account Book, if properly used, contains all of the information needed to file an income tax report on the farm business on either the cash or the accrual basis. The record when summarized provides totals which may be transferred to the tax form with a minimum of time and effort.

Another value of the records is to show year-to-year changes in the financial condition and earnings of farmers. A comparison of the prices of things farmers buy and sell helps to do this. But the sources of income and the character of expenses vary widely among different types of farms and so farm records provide the most satisfactory basis for such comparisons.

A fourth value of the records is to show how the investments, incomes, expenses, earnings, yields, and sources of income vary in different parts of the state due to such factors as soil differences, size of farms, type of farming, climatic conditions, and available markets. The records also show the influence of variations within type-of-farming areas in quality of soil, size of farm, and type of organization on crop yields, capital investments, and earnings.

L. J. NORTON

SUMMARY OF FARM BUSINESS REPORTS OF 2,767 FARMS IN ILLINOIS FOR 1944¹

J. B. CUNNINGHAM, M. L. MOSHER, E. N. SEARLS, and O. B. BROWN

Net cash income an acre. The average net cash income an acre for accounting farms dropped slightly in 1944 from the peak reached in 1943. The earning figure was \$15.64 for 1944, compared with \$17.16 for 1943, \$1.47 for 1932, \$6.22 for 1930, and an average of \$5.30 for the years 1934, 1935, 1937, 1938, and 1939, when earnings were practically the same for each year (Fig. 1).

For the successive years 1930-1944 the average net cash income an acre for Illinois accounting farms was as follows:

1930.....\$6.22	1935.....\$5.14	1940.....\$ 6.82
1931..... 2.69	1936..... 7.40	1941..... 9.91
1932..... 1.47	1937..... 5.33	1942..... 14.99
1933..... 3.00	1938..... 5.25	1943..... 17.16
1934..... 5.40	1939..... 5.40	1944..... 15.64

The net cash income an acre was computed by subtracting the value of unpaid labor from the cash balance for the year and by dividing that difference by the number of acres on the farms. In order to calculate the

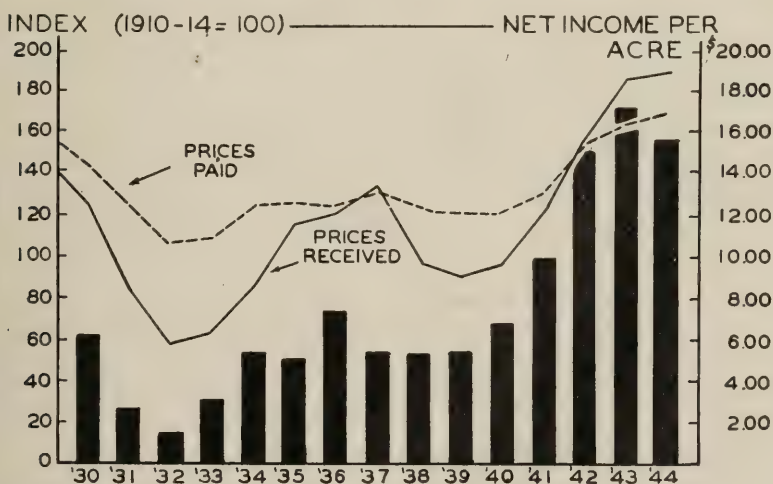


FIG. 1.—AVERAGE NET CASH INCOME AN ACRE (UNPAID LABOR DEDUCTED) ON ILLINOIS ACCOUNTING FARMS, PRICES PAID BY FARMERS IN THE UNITED STATES, AND PRICES RECEIVED BY ILLINOIS FARMERS, 1930-1944

¹ County averages (Table 11) include 1,107 Farm Bureau Farm Management Service records and 1,660 State-Wide Extension project records; other data are based on 113 Farm Bureau Farm Management Service records (included only in Farming-type area 1) and 1,660 State-Wide Extension project records.

state averages, farming-type area averages were weighted by the acres of land in the farms (census) in each farming-type area.

These returns do not include the inventory changes or the money value of food, fuel, and other items of living, all of which are secured from the farm. The net cash income an acre is one of the best measures for comparing incomes of groups of farms over a period of years, or for contrasting the level of income for different type-of-farming areas, because it is not influenced by changes in the inventory of land. During any period of years, earnings fluctuate more widely from year to year when inventory changes are included, since there are usually inventory losses when prices are declining and inventory increases when prices are rising.

Earnings for World War I and II compared. Were net farm earnings for accounting farms higher in 1943 than in 1918, comparable years in World War I and II? How did 1944 compare? These questions can be answered for several individual counties, but not for the state as a whole, because in 1918 farm accounts did not have state-wide coverage.

NET INCOME AN ACRE HIGHER IN 1943 THAN IN 1918 BUT LOWER IN 1944
FOR ACCOUNTING FARMS IN WOODFORD COUNTY

Item	1918	1943	1944
Number of farms.....	19	74	81
Size of farm, acres.....	199	244	250
Gross receipts an acre.....	\$ 39.94	\$ 49.32	\$ 51.74
Gross expenses an acre.....	12.43	20.32	25.42
Net income an acre.....	27.51	29.02	26.32
Corn yield an acre, bushels.....	58	63	63

The average net earnings an acre on an inventory basis for accounting farms in Woodford County, for example, was \$27.51 in 1918 and \$29.02 in 1943, an increase of \$1.51 an acre for the latter year; 1944 showed a decrease of \$1.19 per acre in net earnings when compared with 1918. The farms also increased in size from 199 acres in 1918 to 244 acres in 1943 and to 250 acres in 1944, the net income per farm was materially larger in 1943 than in 1918. Net income per farm dropped off in 1944 in comparison with 1943, but was still much higher than in 1918. Corn yield an acre, an important factor affecting earnings in Woodford County, averaged 58 bushels in 1918 and 63 bushels in both 1943 and 1944.

Effect of large production and high prices on earnings. In 1944, the ratio of prices received by Illinois farmers to prices paid for supplies was 111 percent of the 1910-1914 ratio, and in 1937, it was 102 percent, or 9 points higher in 1944 than in 1937 (Fig. 1).

Why, then, should the net cash income an acre be so much larger in 1944 than in 1937? The answer is simply that, due to the war, the level of both domestic and foreign demand was high in 1944, and farmers had a large supply of salable products because of an accumulation of grain and livestock resulting from eight consecutive years of better than average crop yields and from moderately favorable feeding ratios. Such a combination of circumstances is unusual. Therefore, the farmer should be cautious about making long-time commitments based on 1944 net earnings.

We have had years of low volume of sales, as 1937, when prices were high but there was little to sell, and we have had years like 1939 when a large volume of products was sold at relatively low prices. The effect of both of these combinations was a fairly low level of farm incomes. In 1936, a fair volume of products was marketed at good prices, but 1944 was a year when a large volume of products was sold at high prices.

In 1944, with a strong domestic demand resulting from the high incomes of city workers, and with a stronger foreign demand, the large volume of agricultural products was sold at increasing prices. The average cash income per accounting farm advanced from \$12,113 a farm in 1943 to \$12,654 a farm in 1944. When inventory changes were included, the gross income per farm decreased from \$12,882 a farm in 1943 to \$12,502 a farm in 1944, a 3 percent decrease.

Accounting farms represent better than average condition. *The data contained in this report represent Illinois farm conditions which are better than average because the accounting farms are larger than average, the crop yields are above average, and the farms on the whole are operated with an efficiency which is greater than average. Differences between all farms and the accounting farms are indicated in the following table:*

Item	All farms	Accounting farms
Average size, acres.....	154 ^a	251
Corn yield an acre in 1944, bushels.....	45 ^a	47.6
Average gross cash income a farm.....	\$9,055 ^{a, b}	\$12,654

^a Source: Illinois Cooperative Crop Reporting Service.

^b All farms adjusted to the same size as the accounting farms.

Value of farm products used in the household. In the farm business reports published since 1938, and in the printed tables at the back of this report, the farm value of meat, milk, eggs, and other farm products used in the household was included as a source of income. In addition

TABLE 1.—SELECTED ITEMS OF INCOME AND EXPENSE ON
ILLINOIS ACCOUNTING FARMS, 1938-1944^a

Item	1938	1939	1940	1941	1942	1943	1944
Acres per farm.....	232	237	242	239	239	239	251
Cash income per farm.....	\$5 285	\$5 920	\$6 334	\$8 002	\$10 865	\$12 113	\$12 654
Cash expenditures per farm.....	3 421	4 001	4 094	4 983	6 470	6 905	7 375
Cash balance.....	\$1 864	\$1 919	\$2 240	\$3 019	\$4 395	\$5 208	\$ 5 279
Inventory increase.....	428	1 117	541	2 082	1 562	769	-152
Farm products used in household.....	271	254	243	284	342	382	395
Cash balance plus inventory increase and farm products used in house- hold.....	\$2 563	\$3 290	\$3 024	\$5 385	\$ 6 299	\$ 6 359	\$ 5 522
Unpaid labor.....	698	696	691	769	1 011	1 367	1 623
Net farm earnings.....	\$1 865	\$2 584	\$2 333	\$4 616	\$ 5 288	\$ 4 992	\$ 3 899
Gross receipts per acre ^b	\$17.83	\$20.96	\$20.16	\$31.26	\$ 36.87	\$ 38.36	\$ 38.56
Total expense per acre ^c	9.95	10.26	10.47	11.63	14.82	17.35	22.67
Net receipts per acre ^b	\$ 7.88	\$10.70	\$ 9.69	\$19.63	\$ 22.05	\$ 21.01	\$ 15.89
Net receipts per acre (cash basis).....	\$ 5.25	\$ 5.40	\$ 6.82	\$ 9.91	\$ 14.99	\$ 17.16	\$ 15.64

^a In this table and in succeeding tables where data are on a farm basis rather than on an acre basis, state averages were obtained by weighting area averages by the number of farms in each area.

^b Gross receipts include inventory changes and farm products used in household.

^c Total expense includes unpaid labor charge.

these products have been included in comparing the 1938-1944 records in Table 1. The average values per farm of farm products used in the household has shown a steady increase since 1940. This increase is probably largely due to the increase in prices of the products during that period.

From the records which are used to analyze the farm business, rental value of the farm residence, as well as depreciation and maintenance expenses of the residence are omitted. Thus the accounting for farm buildings agrees with income tax rulings.

Cash income per farm. The average cash income and cash expenditures per farm were larger in 1944 than in any year in the history of farm accounting in Illinois.

The average cash balance of \$5,279 for 1944 was over five times as large as the average cash balance of \$968 for 1932, the low-income year of the depression (Table 1). The average cash balance for 1944 was \$71 a farm larger than in 1943, but income tax payments made in 1944 for 1943 and 1944 must be deducted from this sum in order to calculate the increase available for farm family living and savings.

Cash farm business expenditures. Illinois accounting farmers spent more money to run their farms in 1944 than in any year of record and probably established an all-time high because farms are larger now and farmers purchase a higher percentage of the materials used to operate their farms. Expenditures averaged 7 percent larger in 1944 than in 1943 and 115 percent larger in 1944 than in 1938 (Table 2). More money was spent in 1944 than in 1943 for all items except for feed and grain. The

TABLE 2.—CASH FARM BUSINESS EXPENDITURES ON
ILLINOIS ACCOUNTING FARMS, 1938-1944

Nature of expenditures ^a	Average per farm							Percent 1944 is of 1943
	1938	1939	1940	1941	1942	1943	1944	
Land improvements, total.....					\$ 222	\$ 248	\$ 357	144
Capital purchases.....					(158)	(168)	(240)	143
Operating expense.....	\$314	\$ 368	\$ 368	\$ 389	(64)	(80)	(117)	146
Farm buildings, total.....					310	306	318	104
Capital purchases.....					(208)	(204)	(205)	100
Operating expense.....					(102)	(102)	(113)	111
Machinery and equipment, total.....	969	961	1 019	1 335	1 430	1 366	1 703	125
Capital purchases.....					(648)	(469)	(666)	142
Operating expense.....					(782)	(897)	(1 037)	116
Feed and grain.....	471	634	647	947	1 461	1 866	1 751	94
Transport and hauling expense.....	148	144	152	159	220	268	307	114
Redeem labor.....	348	371	369	432	548	621	648	104
Repairs.....	256	272	287	294	302	311	327	105
Livestock and miscellaneous.....	915	1 251	1 252	1 427	1 977	1 919	1 964	102
Total cash expenses.....	\$3 421	\$4 001	\$4 094	\$4 983	\$6 470	\$6 905	\$7 375	107

^a Total for each item of expenditure was determined by weighting the averages of each area by the number of census farms in the area.

Expenditures show amounts spent for capital and operating items, as well as the total of the two items. There was a large increase in capital purchases for land improvements and machinery and equipment in 1944 in comparison with 1943 (Table 2).

The average expenditure per farm of \$7,375 in 1944 may be contrasted with an average expenditure of \$1,494 per farm in 1933, the low point for expenditures in the depression period—an increase of 393 percent. This increase reflects changes in the price level, changes in the quantities purchased, and changes in the average size of farm.

Inventory increases. Inventory increases occurred each year since the depression year of 1932 up to 1944, and these annual increases have ranged from \$428 per farm in 1938 to \$2,082 per farm in 1941 (Table 1). The average annual increase for the 11-year period ending in 1943 was \$389 a farm; for the 11-year period it has totaled \$9,779 a farm. There was a decrease per farm in inventories of \$152 in 1944.

An inventory increase indicates that the combined value of livestock, grain, improvements, and machinery was larger at the end of the year than at the beginning. The ending inventory of each year is for the same farms as the beginning inventory, but the farms included in the averages for one year are not exactly the same as those for any other year because some old cooperators are dropped each year and new ones are added.¹

The series of inventory increases for a period of 11 years reflects the increase in prices for farm products, heavy investments in improvements

¹ More than 1000 of the cooperators have kept records for ten or more years.

and machinery, and an accumulation of grain and livestock. Enough money has been spent for machinery and improvements so that the value per farm on January 1, 1943, was 107 percent larger for machinery and 20 percent larger for improvements than it was in 1934. Earnings were larger during the 11 years (1933-1943) if inventory changes are included than if calculations are made on a cash basis. On the other hand, inventory losses averaged \$866 a year for the 3 years, 1930-1932, and \$152 for 1944. The inventory loss in 1944 was due to the large decreases in livestock and feed and grain inventories. Machinery and land improvements showed substantial increases in inventories. The cash basis more nearly reflects the ability of the farmer to pay his interest, to buy the things that the family needs, and to add something to the savings than does the method of accounting which includes inventory changes. Inventory changes must be included, however, in order to find the net position of the farm business for the year.

Variations in earnings from farm to farm. Earnings for the farm included in each area vary widely. Much of the farm-to-farm variation is due to the managerial ability of the operators and to the manner in which the farms are organized and operated. The wide variation in rate earned on investment, net earnings per farm, and labor and management earnings indicates the opportunities which some farmers have for improving the income from their farms because these variations are largely due to factors over which the operator has some control.

Prices of important farm products. The average annual farm price

TABLE 3.—PRICES OF IMPORTANT ILLINOIS FARM PRODUCTS, AS OF DECEMBER 15, 1943 AND 1944 AND AVERAGE OF 15TH OF MONTH PRICES FOR 1943 AND 1944

Farm product	December 15 farm prices		Average yearly farm prices		Percent change in 1944 from 1943	
	1943	1944	1943	1944	Dec. 15 prices	Yearly prices
Corn, bu.....	\$1.06	\$1.04	\$.98	\$1.07	- 1.9	+ 9.2
Wheat, bu.....	1.54	1.57	1.43	1.54	+ 1.9	+ 7.7
Oats, bu.....	.78	.70	.66	.74	-10.3	+12.1
Barley, bu.....	1.20	1.06	1.00	1.16	-11.7	+16.0
Soybeans, bu.....	1.80	2.05	1.68	1.91	+13.9	+13.7
Apples, bu.....	3.00	3.10	2.49	3.11	+ 3.3	+24.5
Cloverseed, bu.....	18.00	18.70	16.52	18.52	+ 3.9	+12.1
Hay, ton.....	18.60	18.40	15.11	17.65	- 1.1	+16.8
Horses, head.....	81.00	70.00	91.16	81.00	-13.6	-11.1
Milk cows, head.....	126.00	119.00	129.25	124.50	- 5.6	- 3.7
Beef cattle, cwt.....	12.80	13.20	13.46	13.34	+ 3.1	- 1.4
Hogs, cwt.....	13.10	13.70	14.07	13.47	+ 4.6	- 4.9
Lambs, cwt.....	13.40	13.20	13.57	13.52	- 1.5	- 1.4
Chickens, lb.....	.23	.24	.24	.24	+ 4.3	0.0
Milk, cwt.....	3.41 ^a	3.78 ^a	3.04 ^a	3.48 ^a	+10.8 ^a	+14.1
Butterfat, lb.....	.54 ^a	.61 ^a	.50 ^a	.57 ^a	+13.0 ^a	+14.0
Eggs, doz.....	.41	.39	.36	.31	- 4.9	-13.3
Wool, lb.....	.44	.44	.42	.42	0.0	0.0

^a Includes dairy feed payments.

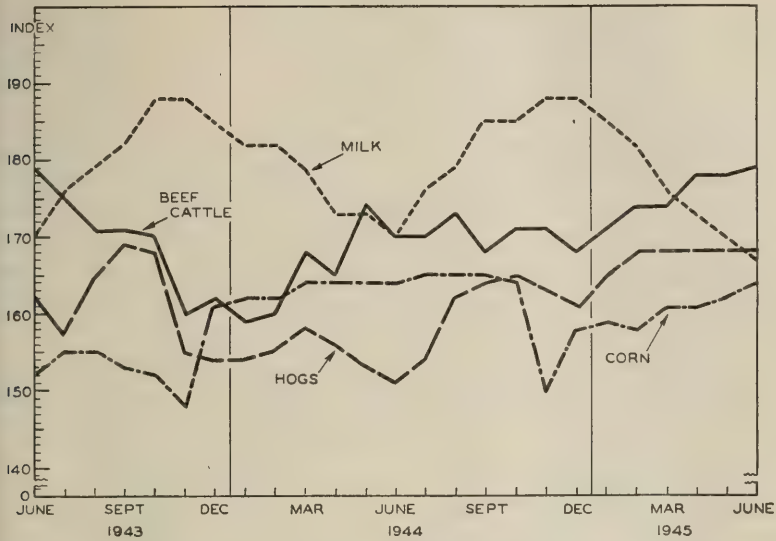


FIG. 2.—INDEXES OF THE AVERAGE MONTHLY ILLINOIS FARM PRICES OF CORN, HOGS, BEEF CATTLE, AND MILK, JUNE, 1943-JUNE, 1945, (1935-1939 = 100). MILK INDEX EXCLUDES DAIRY FEED PAYMENTS FOR OCTOBER, 1943 THROUGH JUNE, 1945

of the more important feed, grain, and seed produced in Illinois was higher in 1944 than in 1943; however, livestock and livestock products were generally lower (Table 3). At the end of 1944, the prices of many farm crops were lower than at the end of 1943 except the prices of wheat, soybeans, apples, cloverseed, beef cattle, hogs, chickens, milk and butterfat.

The index of all Illinois farm prices in 1944 was 2 percent higher than in 1943 (Fig. 1). The percentage changes for the various groups were as follows: chickens and eggs, -9 percent; meat animals, -2 percent; dairy products, no change; grain, +10 percent; and fruit, +28 percent.

Shifting ratios between the prices of livestock and livestock products, and of feeds is responsible for a large part of the variation in earnings among different farming-type areas in Illinois. The relationships between the prices of livestock and/or livestock products and feeds indicate an unfavorable situation during most of 1944 for all livestock producers.

The changes that have taken place in the average monthly Illinois prices of hogs, beef cattle, and milk as related to corn prices appear in Fig. 2.

Variation in supplies. Prices of farm products at inventory time influence farm earnings because all feed, grain, livestock, and other farm property are valued at the beginning and at the end of the year. Conse-

quently, the influence is greatest when large stocks are on hand at inventory time and when prices at that time vary widely from those during the year when purchases and sales would be made in the course of operations.

At the end of each year since the drouth of 1936 up through 1942 the inventories of the four major grain crops (corn, oats, wheat, and soybeans) on Illinois farms were larger at the end of the year than at the beginning. With less favorable crop production conditions and large demands for grain from increased numbers of livestock and for industrial uses in the production of war goods, this upward trend as reflected by the accounting farms was broken in 1943.

Farm supplies of feed and grain were smaller at the end of 1944 than at the beginning; livestock showed even a larger decline in inventory at the end of 1944—mainly due to smaller numbers of horses, hogs, and poultry.

Machinery and equipment study. Inventories of machinery and equipment were increased during 1944. From a group of 322 records taken from sample counties in each of the nine farming-type areas it was found that on an average the account keepers had capital purchase of machinery and equipment of \$630 per farm; these same farms showed depreciation of machinery and equipment of \$398 per farm and sales of machinery and equipment of \$94 per farm. This leaves a net increase in the machinery and equipment account of \$138 per farm.

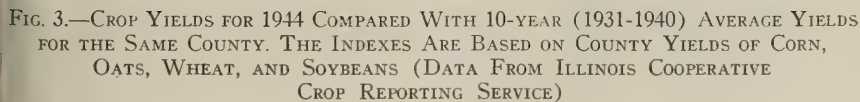
Of the new machinery purchased in 1944 it was found that about the following percentages of the account keepers acquired these different kinds of machinery: tractors, new, 12%; tractors, used, 7%; corn pickers, new, 3%; corn pickers, used, 2%; combines, used, 3%; balers, 3%; trucks, 4%; and manure spreaders, 7%.

Many of the account keepers reduced their machinery and equipment expense by doing custom work; in fact, the study shows that about one out of every three farmers did custom work in 1944. Income to machinery other than sales, which includes custom work amounted to \$176 per farm.

The account keepers' average operating expense of machinery and equipment was about \$850 per farm.

Crop yields in Illinois, 1944. The year 1944 was the eighth consecutive year of high crop yields in Illinois. The weighted average yield of corn, oats, wheat, and soybeans for 1943 was 113 percent of the 10-year average, 1931-1940.

In 1944 yields of the four principal grain crops as expressed in percentages of 1931-1940 averages, follow: corn, 119; oats, 105; soybeans,



109; and wheat, 101. Corn yields were higher than the 10-year (1931-1940) average for 77 counties. Corn yields were lower than the 10-year (1931-1940) average for all counties with a crop yield index of 100 or below except Piatt; corn yields were below the stated 10-year average for only the following counties that showed a crop yield index above 100: Effingham, Franklin, Jefferson, Marion, Perry, Pope, and Washington.

It is apparent that corn influences the crop yield index to a major extent. All counties that showed about average or below indexes had corn yields well below their 10-year average.

Yields of oats, wheat, and soybeans were lower than the previous 10-year average yields in 62, 21, and 4 counties, respectively.

Counties in the northern part of the state having yields over 30 percent above the 10-year average were Stephenson, Boone, Winnebago, and DuPage counties. Randolph County in the southern part of the state had yields 32 percent above its 10-year average.

Variations in net cash income an acre. The average net cash income per acre for Illinois accounting farms in 1944 varied from \$4.67 in Area 7 to \$20.29 in Area 4 (Table 4).

Net cash incomes were lower in 1944 than in 1943 in all areas except Areas 1 and 7, where they were higher. In Area 1 the increase from 1943 to 1944 was \$4.40 or 28 percent, as contrasted to a decrease of \$3.50 or 15 percent in Area 2.

The net cash income per acre reflects, in part, the crop yields of the preceding years, because a large percentage of the grain and livestock sales are from crops harvested during prior years. It also reflects current prices for products produced in the area: Thus in Area 1 the beneficial effect of

TABLE 4.—NET CASH INCOME AN ACRE FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1942, 1943, 1944

Farming-type areas	1925-1929	1930-1934	1935-1939	1940-1944	1942	1943	1944
Area 1, Chicago Dairy ^a	\$9.59	\$5.25	\$5.61	\$13.72	\$15.71	\$15.40	\$19.8
Area 2, Northwestern Mixed Livestock ^b ..	7.94	4.92	7.23	15.96	16.83	22.84	19.3
Area 3, Western Livestock and Grain ^b	9.05	4.86	6.99	15.33	19.63	19.42	17.1
Area 4, East-Central Cash Grain ^b	8.91	4.46	7.15	17.09	20.25	22.63	20.2
Area 5, West-Central General Farming..	6.35	3.23	4.62	11.58	13.21	16.15	15.5
Area 6, St. Louis Dairy and Wheat.....	3.26	2.03	3.32	5.79	5.69	7.76	6.3
Area 7, South-Central Mixed Farming....	2.21	.91	1.96	3.47	3.40	4.47	4.6
Area 8, Wabash Valley Grain and Livestock.....	4.57	1.73	3.96	6.58	7.51	10.07	8.3
State Average (weighted by acres in each area).....	\$7.13	\$3.74	\$5.70	\$12.90	\$14.99	\$17.16	\$15.6

^a In calculating these averages, records of the Farm Bureau Farm Management Service were included for the years 1942, 1943, and 1944.

^b In calculating averages for these areas, records of the Farm Bureau Farm Management Service were included for the years 1939, 1940, 1941, and 1942.

TABLE 5.—INVENTORY CHANGES BY FARMING-TYPE AREAS, 1944

Farming-type areas	Number of records	Live-stock	Feed and grain	Machinery	Buildings	Land improvements	Total
Area 1 ^a	141	\$-128	\$-469	\$ 92	\$-14	\$135	\$-384
Area 2.....	185	-128	- 55	71	23	74	- 15
Area 3.....	249	161	44	134	41	118	498
Area 4.....	452	-352	-438	143	-31	104	-574
Area 5.....	236	-489	- 21	157	-36	116	-273
Area 6.....	278	- 66	310	138	10	64	456
Area 7.....	122	-400	115	-59	49	104	-191
Area 8.....	75	-350	-166	13	5	100	-398
Weighted Average.....		\$-243	\$-110	\$97	\$2	\$102	\$-152

^a Includes Farm Bureau Farm Management Service Records.

high crop yields in 1942 and 1943, as well as in 1944, was enhanced by the prices of dairy products which averaged fairly high in relation to the prices of most other farm products, when the subsidy is taken into account.

Inventory changes by farming-type areas. The average inventory decreased \$152 a farm in 1944. This amount included inventory decreases in all areas except Areas 3 and 6 with the largest decrease in Area 4 (Table 5). In general, inventory decreases were greatest in areas with the lowest crop yield indexes (Fig. 3).

The increase in machinery inventory of \$97 a farm was the result of increased amounts of machinery and equipment made available to the farmers in 1944 and the overhauling of their old machinery.

The \$102 increase in land improvements indicates relatively large purchases of limestone and rock phosphate. Average building values in 1943 increased \$2. Governmental restrictions prevented new construction.

TABLE 6.—NET INCOME AN ACRE (INVENTORY BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1942, 1943, AND 1944

Farming-type areas	1925-1929	1930-1934	1935-1939	1940-1944	1942	1943	1944
Area 1, Chicago Dairy ^a	\$11.04	\$2.64	\$10.03	\$20.54	\$24.47	\$24.46	\$17.91
Area 2, Northwestern Mixed Livestock ^b	15.11	2.70	11.45	22.00	28.26	27.12	19.27
Area 3, Western Livestock and Grain ^b	10.24	2.84	11.43	21.61	29.92	24.45	19.30
Area 4, East-Central Cash Grain ^b	10.30	2.76	11.05	20.84	26.89	25.29	18.17
Area 5, West-Central General Farming.....	7.69	1.99	7.92	15.38	18.08	18.96	14.53
Area 6, St. Louis Dairy and Wheat..	5.41	.92	5.55	8.37	8.60	9.01	8.37
Area 7, South-Central Mixed Farming	3.34	.55	3.76	5.46	6.91	6.52	4.03
Area 8, Wabash Valley Grain and Livestock.....	5.34	1.20	5.22	9.21	12.59	12.07	6.73
State Average (weighted by acres in each area).....	\$8.59	\$2.20	\$9.23	\$17.08	\$21.79	\$20.44	\$15.10

^a Area 1 includes records from the Farm Bureau Farm Management Service for 1942, 1943, and 1944.

^b For these areas, records from the Farm Bureau Farm Management Service are included for the years 1939, 1940, 1941, and 1942.

Variations in net income an acre with inventory changes included.

When inventory changes were included, the average net income an acre on accounting farms was 26 percent lower in 1944 than in 1943 (Table 6) because inventories decreased in 1944 and increased in 1943. In 1944 inventory decreases a farm averaged \$152, but in 1943 inventories increased \$769. The decrease in 1944 of 26 percent with inventories included is in contrast with a decrease of 9 percent on the cash basis.

This is the first time since 1932 that the net income an acre on the inventory basis has been lower than on the cash basis and is the fourth time since 1925. The other low years for the inventory basis were in 1930, 1931, and 1932. In 1944, the range in net income per acre was from \$4.03 in Area 7 to \$19.30 in Area 3.

Income from agricultural payments. Cash incomes of accounting farmers in 1944 included government payments which were received during the year for participation in the agricultural conservation program. These, however, are much smaller than those received in 1943.

Factors Affecting Farm Earnings

Farm account studies have repeatedly shown the principal factors affecting relative earnings to be land use, crop yields, amount of livestock, livestock efficiency, labor cost, machinery cost, and prices received for things sold. They have also shown the following: (1) the quality of land affects the cropping system and the crop yields; (2) the kind of livestock influences the kinds and amounts of feed fed as well as the returns for feed fed; (3) the size and intensity of the farm business affects practically all the cost items; and (4) price relationships and quantities of products produced affect the relative profitableness of various types of farming for any particular year.

With the foregoing facts in mind, 452 farms in Area 4 were sorted into groups as indicated in Figures 4, 5, and 6 and 434 farms in Areas 2 and 3 were similarly handled in Tables 7 and 8. Similar figures and tables for each of the nine major type-of-farming areas of the state can be found in the area reports for 1944. These reports are available upon request and may be used by any farmer who keeps records to analyze his efficiency.

The terms used in the various figures and tables are the same as those used in the Illinois Farm Account Book. For example, "improved land," a term that is used in Figure 4, means tillable land and land occupied by farmstead, roads, and orchards.

Crop yields. Figure 4 shows the effect of quality of land (expressed as value an acre) on yields of corn, oats, and soybeans. Land valued a

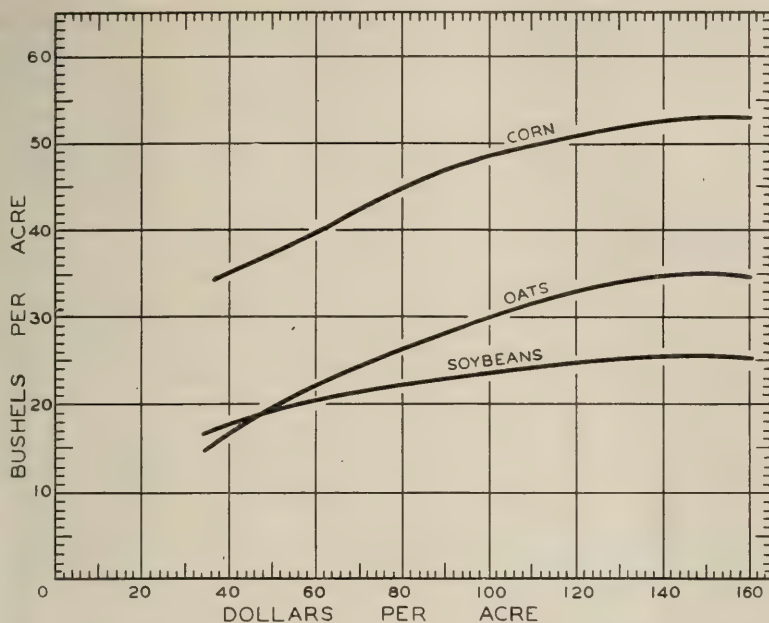


FIG. 4.—AVERAGE YIELDS OF CORN, OATS, AND SOYBEANS WITH VARYING VALUES OF IMPROVED LAND, FARMING-TYPE AREA 4, 1944

\$40 an acre produced about 35 bushels of corn, 17 bushels of oats, and 18 bushels of soybeans; land valued at \$150 an acre produced about 53 bushels of corn, 35 bushels of oats, and 25 bushels of soybeans. The differences in acre-yields between \$40 land and \$150 land are as follows: corn, 18 bushels; oats, 18 bushels; and soybeans, 7 bushels.

Such variations are significant, but the fact should be kept in mind that they apply only to the conditions which prevailed in 1944. Soybean yields may be higher or lower in relation to corn yields in years with growing conditions, different from those in 1944. Data of this type are valuable because they enable farmers to compare the yields on their own farms with those on farms having a similar quality of land.

Source of income. The grouping of accounting farms according to source of income for 1944 gives each farmer an opportunity to compare his farm with the average of other farms having similar sources of income. It also gives him an opportunity to study investments, land use, crop yields, labor requirements, horse and machinery requirements, and other factors that are associated with various types of farming.

Farmers, however, should be careful in interpreting the data in Table 7. For example, the fact that grain farmers showed the largest rate earned

TABLE 7.—SOURCE OF INCOME RELATED TO FARM EARNINGS AND OTHER FACTORS FOR 434 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2 AND 3, 1944

Item	Source of income				
	Grain 40% +	Dairy sales 40% +	Hogs 40% +	Hogs 40% + and cattle 20% + or vice versa	General farms
Number of farms.....	56	35	154	105	84
Percent of income from productive livestock....	36.4	91.6	85.8	92.9	78.5
Percent of income from crops.....	58.1	....	....	....	9.8
Investments					
Total per farm.....	\$42 913	\$30 963	\$34 016	\$46 831	\$38 184
Total per acre.....	156	190	177	192	181
Land per acre.....	100	90	95	95	94
Land improvements per acre.....	3.30	3.12	3.38	3.64	3.36
Buildings per acre.....	13.86	32.52	19.66	20.77	21.77
Machinery per acre ^a	10.17	15.13	12.37	12.55	12.82
Earnings					
Per farm					
Gross earnings.....	\$10 840	\$ 8 575	\$ 9 305	\$13 284	\$ 9 392
Gross expenses ^b	4 907	5 338	5 274	8 025	5 168
Net earnings.....	\$ 5 933	\$ 3 237	\$ 4 031	\$ 5 259	\$ 4 224
Per acre					
Gross earnings.....	\$ 39.49	\$ 52.56	\$ 48.52	\$ 54.51	\$ 44.54
Gross expenses ^b	17.88	32.72	27.50	32.93	24.51
Net earnings.....	\$ 21.61	\$ 19.84	\$ 21.02	\$ 21.58	\$ 20.03
Rate earned on investment (percent).....	13.8	10.5	11.8	11.2	11.1
Labor and management earnings.....	\$ 5 109	\$ 3 094	\$ 3 666	\$ 4 278	\$ 3 723
Size and Intensity					
Acres per farm.....	275	163	192	244	211
Percent of land area tillable.....	83.1	83.2	81.4	80.6	79.6
Percent tillable land in grain.....	76.7	56.9	70.7	65.9	67.9
Percent tillable land in hay and pasture.....	18.9	34.7	27.1	29.3	27.9
Feed fed per acre to productive livestock.....	\$ 12.94	\$ 34.00	\$ 32.17	\$ 41.20	\$ 26.89
Months of labor per 100 crop acres.....	9.7	17.7	14.5	14.0	14.1
Total months of labor.....	19.8	19.6	19.2	22.8	20.1
Crop Yields per Acre					
Corn, bu.....	57.7	58.1	59.9	61.0	63.3
Livestock Returns					
Per \$100 feed fed.....	\$119	\$147	\$134	\$126	\$135
Hog returns per litter.....	214	216	226	224	192
Dairy returns per cow milked.....	157	237	160	158	180
Expense Factors					
Labor cost per crop acre ^b	\$ 11.67	\$ 21.56	\$ 16.88	\$ 16.38	\$ 16.62
Horse and machinery cost per crop acre.....	7.97	12.17	10.00	10.49	9.88
Land improvements cost per acre.....	.83	.71	.89	1.06	.86
Buildings cost per acre.....	1.03	2.05	1.51	1.73	1.52
Land tax per acre.....	1.06	1.24	1.19	1.17	1.17

^a Machinery includes farm share of automobile. ^b Expenses include operator's and family's labor.

on the investment for 1944 and that dairy farms showed the smallest does not mean such a relationship will prevail over a long period of years. The relative profitableness of these enterprises in 1944 was influenced by conditions affecting price, production and costs.

When comparing the returns on the various groups of farms per \$100 worth of feed fed, one should consider the fact that the necessary returns per \$100 worth of feed fed to pay for feed (including pasture), labor, equipment, buildings, and other costs vary widely. According to 5-year averages of complete cost studies (1939-1943), the necessary returns were: poultry, \$186; dairy cattle, \$185; hogs, \$135; and feeder cattle, \$120.

Furthermore, when comparing crop yields for the various types of farming, one should note the following items which indicate that the grain farms were located on the better land: (1) high value of land per acre; and (2) large percent of land in grain.

Differences in expenses are highly significant for the 5 groups of farms. Labor input per 100 crop acres was highest on the dairy farms, where 17.7 months of labor were used, and lowest on the grain farms, where 9.7 months of labor were used. The dairy farmers evidently utilized a large amount of labor to increase the size of their businesses without increasing the size of their farms.

The labor cost per crop acre ranged from \$21.56 on the dairy farms to \$11.67 on the grain farms; the horse and machinery cost per crop acre was highest on the dairy farms, where it averaged \$12.17 and lowest on the grain farms, where it averaged \$7.97; the building cost per acre averaged \$2.05 on the dairy farms and \$1.03 on the grain farms.

Labor, horse and machinery, and improvement costs were higher for all sources of income groups in 1944 than in 1943; labor cost per crop acre, for example, was 23 percent higher on the grain farms in 1944 than in 1943.

Size of farm. When the farm records in Farming-Type Areas 2 and 3 are sorted according to the total acres in the farm (Table 8), they indicate that the operators on the largest farms took in more money during the year than did those on the smallest ones; and after deductions were made for farm business expenditures and interest on the investment, the 35 largest farms had labor and management earnings which averaged \$8,351 contrasted with \$2,288 for the 61 smallest farms. The latter had higher investments an acre for improvements, machinery, and total investment, indicating a higher capital input. The rate earned on investment increased moderately from the farms averaging less than 121 acres to those averaging 320 acres and showed a marked increase for those averaging 361 acres or more.

In 1944, the smaller farms were operated more intensively than were the larger ones. This is indicated by the higher gross earnings an acre, by the larger labor and capital input an acre, and by the larger value of feed fed an acre to productive livestock.

The method used to increase the volume of business depended upon the individual farm. Some farm operators apparently increased the volume of their businesses by improving the quality and increasing the amount of livestock; others, by growing more intensive crops, by increasing crop yields, or by developing special markets; still others, by increasing the acreage operated or by applying combinations of the above methods.

TABLE 8.—SIZE OF FARM RELATED TO FARM EARNINGS AND OTHER FACTORS FOR 434 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2 AND 3, 1944

Item	Total acres in farm				
	Less than 121	121 to 200	201 to 280	281 to 360	361 or more
Number of farms.....	61	177	121	40	35
Acres per farm.....	102	164	240	323	476
Acres in crops.....	71	116	165	221	317
Investments					
Total per farm.....	\$20 004	\$31 795	\$42 525	\$56 740	\$73 910
Total per acre.....	197	194	177	175	155
Land per acre.....	94	100	95	94	89
Land improvements per acre.....	4.36	3.89	3.19	2.94	3.02
Buildings per acre.....	25.51	22.73	19.43	19.10	15.80
Machinery per acre ^a	16.80	14.00	12.11	10.62	9.35
Earnings					
Per farm					
Gross earnings.....	\$ 5 946	\$ 8 838	\$10 887	\$14 733	\$19 718
Gross expenses ^b	4 002	5 390	5 907	7 991	9 087
Net earnings.....	\$ 1 944	\$ 3 448	\$ 4 980	\$ 6 742	\$10 631
Per acre					
Gross earnings.....	\$ 58.49	\$ 53.81	\$ 45.36	\$ 45.57	\$ 41.40
Gross expenses ^b	39.37	32.81	24.61	24.72	19.08
Net earnings.....	\$ 19.12	\$ 21.00	\$ 20.75	\$ 20.85	\$ 22.32
Rate earned on investment (percent).....	9.7	10.8	11.7	11.9	14.4
Labor and management earnings.....	\$ 2 288	\$ 3 211	\$ 4 214	\$ 5 272	\$ 8 351
Size and Intensity					
Percent of land area tillable.....	83.3	84.8	80.3	80.4	76.4
Percent tillable land in grain.....	64.9	67.1	69.2	69.0	73.9
Percent tillable land in hay and pasture.....	31.8	28.5	26.0	26.8	23.8
Feed fed per acre to productive livestock.....	\$38.89	\$ 35.37	\$ 29.27	\$ 27.71	\$ 23.75
Percent of income from productive livestock.....	87.4	83.5	80.9	78.5	70.8
Percent of income from crops.....	.....	.....	5.3	5.0	20.2
Months of labor per 100 crop acres.....	21.2	15.5	12.8	11.6	10.4
Total months of labor.....	15.0	18.0	21.2	25.6	32.9
Crop Yields per Acre					
Corn, bu.....	64.0	62.4	60.1	57.5	58.0
Livestock Returns					
Per \$100 feed fed.....	\$ 138	\$ 132	\$ 130	\$ 133	\$ 127
Hog returns per litter.....	226	217	225	217	221
Dairy returns per cow milked.....	182	179	190	176	190
Expense Factors					
Labor cost per crop acre.....	\$ 24.69	\$ 18.22	\$ 15.18	\$ 13.57	\$ 12.28
Horse and machinery cost per crop acre.....	13.44	11.13	9.05	9.02	8.35
Land improvements cost per acre.....	1.19	.99	.91	.94	.65
Buildings cost per acre.....	2.04	1.74	1.52	1.27	1.15
Land tax per acre.....	1.28	1.24	1.15	1.12	1.06

^a Machinery includes farm share of automobile. ^b Expenses include operator's and family's labor.

Labor and horse and machinery expenses. The effect of the amount of feed fed an acre to productive livestock on labor and horse and machinery costs per crop acre is shown graphically in Figures 5 and 6.

These charts show that as the size of farms increased the cost per crop acre decreased more than twice as fast for labor as for horses and machinery. For example, with farms feeding \$20 worth of feed per acre, the labor cost per crop acre decreased from about \$18.90 to \$9.40 and horse and machinery cost decreased from about \$11.50 to \$7.25 as the size of farm increased from 120 acres or less to 441 acres or more. In the former case the decrease was \$9.50, but in the latter it was only \$4.25. If labor cost in relation to horse and machinery cost had been lower, the

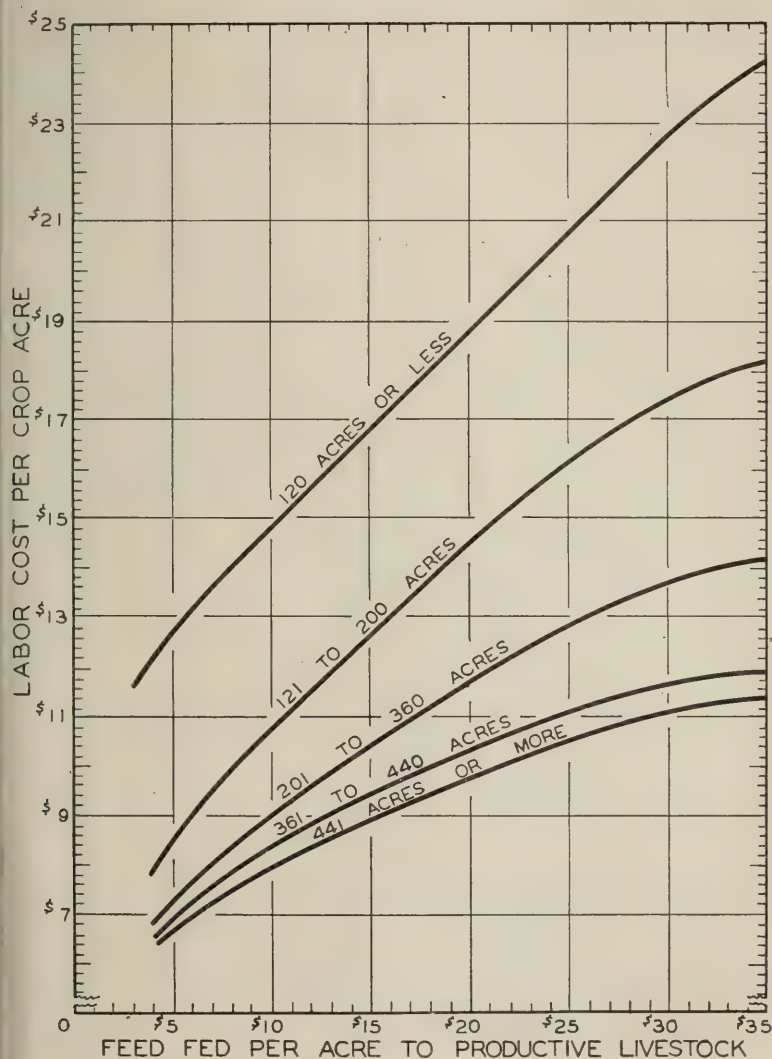


FIG. 5.—LABOR COST PER CROP ACRE FOR FARMS OF VARYING SIZE AND WITH VARYING AMOUNTS OF FEED FED TO PRODUCTIVE LIVESTOCK, FARMING-TYPE AREA 4, 1944

difference would not have been so great. However, the comparison focuses attention on the possibility that the adjustment to size of farm business presents a bigger problem for labor than for machinery. In 1944, cost per crop acre was higher for labor than for horses and machinery for each farm size group.

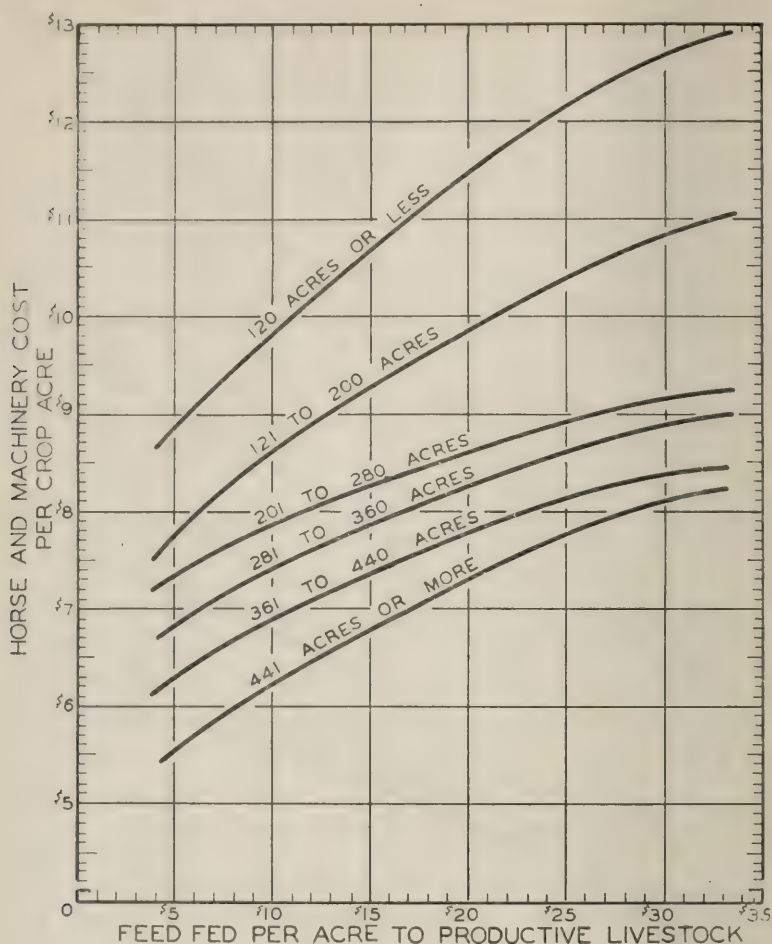


FIG. 6.—HORSE AND MACHINERY COST PER CROP ACRE FOR FARMS OF VARYING SIZE AND WITH VARYING AMOUNTS OF FEED FED TO PRODUCTIVE LIVESTOCK, FARMING-TYPE AREA 4, 1944

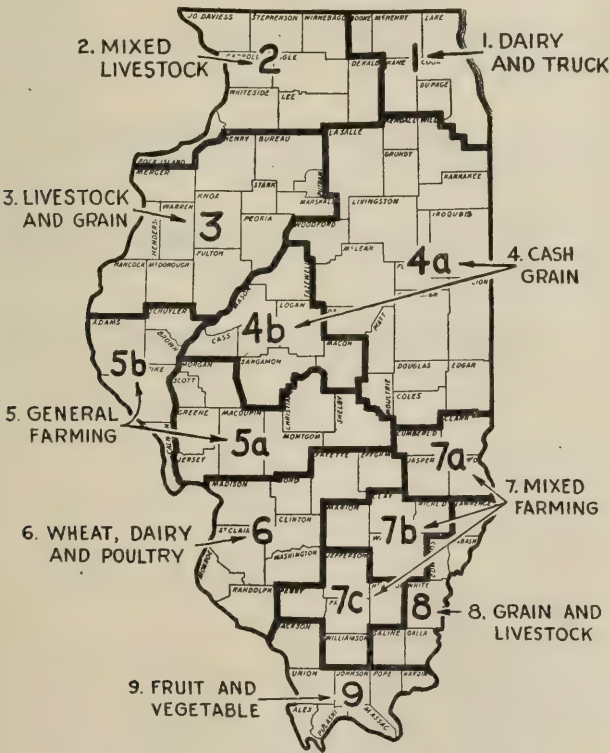
Five other significant things are apparent in these charts: (1) costs per crop acre increased as the size of the farms decreased; (2) costs increased as the amount of feed fed per acre increased; (3) costs (especially labor costs) decreased much less rapidly when the size of farms was 361 acres or larger than was evident on the increase in size up to 360 (this situation is explained in part by the fact that dairy cattle and poultry predominate on the smaller farms and that beef cattle predominate on the larger farms); (4) labor costs increased rapidly as the feed fed increased from \$5 to about \$25 an acre; and (5) labor costs

increased less rapidly but more uniformly from \$25 to \$35 an acre, specially for farms in the larger size groups.

Farmers who know what their cost for labor and for horse and machinery expense per crop acre was in 1944 will find that these data contain a basis for comparing their expenses with averages for other farms of the same size and with the same intensity of livestock.¹

Data for Counties and Groups of Counties

Averages were calculated for each county with sufficient records to give significant averages and for groups of counties with small numbers of records. These averages are arranged in Table 11 according to farming-type areas. The averages for counties or groups of counties for Area 1 come first in the list, and those for Area 9 at the end of it. For summaries of farming-type areas see Tables 9 and 10.



THE NINE MAJOR TYPE-OF-FARMING AREAS IN ILLINOIS

¹ Data for other areas of Illinois are available in the area reports for 1944.

TABLE 9.—INVESTMENTS, CASH RECEIPTS, CASH EXPENSES, AND INVENTORY CHANGES
AVERAGES PER FARM BY FARMING-TYPE AREAS, 1944

Item	Area 1*	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Capital investment, total	\$46 519	\$37 726	\$39 641	\$48 417	\$33 821	\$20 638	\$19 979	\$20 530	\$14 867
Land	19 678	18 472	22 220	30 764	18 455	10 345	9 851	10 642	6 864
Land improvements	917	713	716	4 098	737	502	770	621	477
Farm buildings	8 533	5 113	3 807	4 098	3 285	2 580	2 079	1 926	1 840
Machinery and equipment*	3 115	2 668	2 660	2 957	2 517	2 214	1 970	1 858	1 210
Feed and grain	5 626	4 513	4 681	5 503	3 952	2 279	2 193	2 579	1 778
Livestock, total	8 650	4 178	5 557	4 178	4 875	2 718	3 116	2 904	2 698
Cash receipts, total	\$19 735	\$14 665	\$14 029	\$14 565	\$13 283	\$ 8 178	\$ 7 524	\$ 7 573	\$ 5 027
Feed and grain	1 671	2 112	3 193	6 403	3 418	2 111	1 845	2 245	1 276
AAA payments	97	135	134	177	156	141	146	137	102
Labor and miscellaneous	507	256	373	376	390	295	250	236	268
Livestock, total	17 460	12 162	10 329	7 609	9 319	5 631	5 283	4 955	3 381
Horses	41	24	29	36	37	31	39	26	66
Cattle	8 104	5 491	2 951	2 424	2 622	913	1 474	1 226	800
Hogs	3 208	4 161	5 931	3 512	4 751	1 665	2 380	2 560	1 339
Sheep	62	185	224	180	142	62	165	74	37
Poultry and eggs	692	682	512	580	492	777	693	694	552
Dairy sales	5 353	1 619	682	877	1 275	2 183	532	375	587
Cash expenses, total	\$14 001	\$ 8 880	\$ 8 407	\$ 7 465	\$ 7 576	\$ 5 031	\$ 4 784	\$ 4 229	\$ 3 393
Land improvements	509	297	305	342	335	292	458	408	283
Farm buildings	739	407	351	292	269	241	237	168	155
Livestock purchases	5 625	3 620	2 171	1 511	1 516	599	761	1 077	410
Feed and grain	2 565	1 682	2 303	1 531	2 259	1 476	1 248	1 161	539
Machinery and equipment*	2 221	1 562	1 784	2 025	1 762	1 474	1 183	1 147	1 199
Hired labor	1 294	538	689	807	653	415	352	375	358
Crop expense	426	348	302	362	294	223	236	188	211
Taxes	342	274	344	447	346	203	217	236	186
Livestock and miscellaneous	280	152	158	148	142	108	92	69	52
Cash balance	\$ 5 734	\$ 5 785	\$ 5 622	\$ 7 100	\$ 5 707	\$ 3 147	\$ 2 740	\$ 3 344	\$ 1 634
Increase in inventory	—384	—15	498	—574	—273	456	—191	—398	192
Total unpaid labor	1 717	1 874	1 741	1 625	1 608	1 711	1 352	1 313	1 125
Net farm income	\$ 3 633	\$ 3 896	\$ 4 379	\$ 4 901	\$ 3 826	\$ 1 892	\$ 1 197	\$ 1 633	\$ 701
Number of farms included	141	185	249	452	236	278	122	75	35

* Includes Farm Bureau Farm Management Service Records.

• Includes farm share of automobile.

TABLE 10.—FACTORS HELPING TO ANALYZE THE FARM BUSINESS
BY FARMING-TYPE AREAS, 1944

Item	Area 1*	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Size of farm, acres.....	203	202	227	270	263	226	297	242	257
Tillable land (percent).....	83	83	80	90	78	82	85	85	71
Inventory Basis									
Gross receipts per acre ^a	\$ 65.46	\$49.91	\$47.02	\$40.74	\$37.28	\$30.12	\$19.38	\$23.95	\$16.31
Total expenses per acre.....	45.38	28.85	26.04	21.13	21.27	19.93	13.96	15.57	11.98
Net receipts per acre.....	\$20.08	\$21.06	\$20.98	\$19.61	\$16.01	\$10.19	\$ 5.42	\$ 8.38	\$ 4.33
Cash Basis									
Gross receipts per acre.....	\$97.26	\$72.53	\$61.83	\$53.98	\$50.43	\$36.15	\$25.33	\$31.23	\$19.59
Total cash expense per acre ^b	77.46	53.19	44.73	33.69	34.87	29.80	20.66	22.85	17.61
Net cash income per acre.....	\$19.80	\$19.34	\$17.10	\$20.29	\$15.56	\$ 6.35	\$ 4.67	\$ 8.38	\$ 1.98
Acres in:									
Corn.....	54	63	81	90	67	36	53	54	39
Oats.....	35	36	26	32	16	17	16	9	8
Wheat.....	1	1	2	10	17	39	30	38	21
Soybeans.....	6	8	20	57	40	17	23	14	7
Bushels per acre:									
Corn.....	58	62	59	49	46	37	26	31	32
Oats.....	52	44	34	32	26	26	19	23	19
Wheat.....	24	22	23	22	21	22	18	20	18
Soybeans.....	24	21	26	23	23	19	15	14	13
Value of feed fed to livestock.....	\$9.380	\$6.790	\$6.735	\$4.767	\$5.709	\$3.763	\$3.544	\$3.543	\$2.249
Returns per \$100 feed fed.....	133	132	131	132	139	149	131	133	140
Feed fed per acre to livestock.....	\$45.02	\$32.82	\$29.14	\$17.18	\$20.98	\$15.72	\$11.46	\$13.93	\$ 8.07
Returns per acre from livestock.....	59.72	43.18	38.18	22.63	29.11	23.50	15.07	18.49	12.00
Horse and machinery cost per crop acre.....	\$13.84	\$10.27	\$ 9.62	\$ 8.18	\$ 9.02	\$ 9.06	\$ 6.87	\$ 7.29	\$ 8.67
Labor cost per crop acre.....	20.16	16.82	15.55	11.27	13.38	14.48	9.77	10.96	13.91
Value of land per acre.....	\$ 97	\$ 91	\$ 98	\$ 114	\$ 70	\$ 46	\$ 33	\$ 44	\$ 27
Value of land improvements per acre.....	5	4	3	3	3	2	3	3	2
Value of buildings per acre.....	42	25	17	15	12	11	7	8	58
Total investment per acre.....	229	186	175	179	128	91	67	85	58
Number of farms included.....	141	185	249	452	236	278	122	75	35

* Includes Farm Bureau Farm Management Service Records.

^a Farm products used in household included.

^b Includes charge for unpaid labor.

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944

Accounting Item		McHenry	Kane	DuPage, Lake, Cook, Boone	De Kalb
Capital investment, total	1	\$37 890	\$61 140	\$41 048	\$53 378
Land	2	15 603	25 028	18 389	26 786
Land improvements	3	817	1 178	779	1 065
Farm buildings	4	7 634	10 535	7 564	7 185
Horses	5	264	314	254	211
Cattle	6	4 891	10 360	4 884	5 276
Hogs	7	900	2 123	1 310	2 202
Sheep	8	22	70	69	164
Poultry	9	229	226	254	202
Feed and grain	10	4 645	7 705	4 658	6 908
Machinery and equipment	11	2 885	3 601	2 887	3 379
Income, net increases, total	12	\$11 842	\$17 003	\$11 302	\$13 629
Cattle	13	1 142	7 022	1 698	4 081
Dairy sales	14	7 630	3 801	4 877	1 478
Hogs	15	1 528	4 021	2 583	4 582
Sheep	16	10	25	16	139
Poultry and eggs	17	687	618	557	546
Farm products used in household	18	400	496	427	362
Feed and grain	19	257	840	926	2 216
AAA payment	20	122	90	82	162
Labor and miscellaneous	21	66	90	136	63
Expenses, net decreases, total	22	\$ 5 929	\$10 760	\$ 5 983	\$ 5 656
Land improvements	23	328	465	323	370
Farm buildings	24	611	906	669	504
Feed and grain	25	1 235	4 843	1 501	1 419
Machinery and equipment	26	1 597	2 114	1 556	1 723
Hired labor	27	1 183	1 531	1 182	1 017
Taxes	28	291	416	321	341
Livestock and miscellaneous	29	684	485	431	282
Receipts less expenses	30	\$ 5 913	\$ 6 243	\$ 5 319	\$ 7 973
Unpaid labor	31	1 702	1 710	1 735	1 842
Net farm earnings	32	\$ 4 211	\$ 4 533	\$ 3 584	\$ 6 131
Rate earned on investment, percent	33	11.1	7.4	8.7	11.5
Labor and management earnings	34	\$ 3 646	\$ 2 819	\$ 2 826	\$ 4 838
Excess of sales over expenses	35	5 549	6 596	5 162	7 266
Increase in inventory	36	-36	-849	-270	345
Number of farms included	37	42	45	54	102
Size of farm, acres	38	192	225	193	218
Gross earnings per acre	39	\$ 61.68	\$ 75.64	\$ 58.50	\$ 62.49
Total expenses per acre	40	39.75	55.47	39.95	34.38
Net earnings per acre	41	\$ 21.93	\$ 20.17	\$ 18.55	\$ 28.11
Value of land per acre	42	\$ 81	\$111	\$ 95	\$123
Value of improved land per acre	43	87	115	100	125
Value of buildings per acre	44	39.76	46.86	39.15	32.94
Total investment per acre	45	197	272	212	245
Percent of land area tillable	46	79.1	87.3	82.7	91.8
Percent of tillable land in:					
Corn	47	38.4	47.3	38.8	44.8
Oats	48	20.0	21.4	21.1	21.2
Wheat	49	.3	.5	.4	.2
Soybeans for grain	50	.6	4.8	5.0	5.2
Other cultivated crops	51	2.4	3.0	3.1	8.4
Hay and pasture	52	38.3	23.0	31.6	20.2
Bushels per acre: Corn	53	59.1	58.2	56.7	61.9
Oats	54	52.7	55.3	48.5	51.8
Wheat	55	22.5	27.3	20.0	22.5
Barley	56	22.5	30.4	27.9	27.6
Soybeans	57	21.1	27.2	20.4	24.4
Feed fed per acre	58	\$ 38.54	\$ 57.91	\$ 37.52	\$ 41.15
Returns for \$100 feed fed	59	148	121	137	124
Number of litters farrowed	60	9	22	11	22
Returns per litter	61	\$212	\$238	\$217	\$238
Dairy returns per cow	62	279	270	266	225
Horse and machinery cost per-crop acre	63	\$ 15.14	\$ 13.81	\$ 12.97	\$ 10.72
Labor cost per crop acre	64	22.78	18.20	20.44	15.79
Land improvements cost per acre	65	1.71	2.07	1.65	1.65
Farm buildings cost per acre	66	3.18	4.01	3.46	2.31
Taxes per acre	67	1.18	1.48	1.36	1.31

(Continued)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—Continued

	Stephen- son	Lee	Ogle	Rock Island	Winne- bago	White- side	Jo Davies	Carroll
1	\$31 373	\$50 907	\$36 632	\$31 128	\$35 468	\$36 504	\$30 395	\$31 674
2	12 676	27 658	16 258	15 210	13 390	16 016	12 242	14 739
3	569	1 255	741	700	953	741	874	678
4	5 562	5 792	5 335	4 030	7 759	6 059	5 259	5 056
5	212	159	266	194	234	220	311	300
6	3 454	3 659	4 009	2 249	3 999	3 518	3 822	3 247
7	1 725	2 276	1 913	1 903	1 644	2 122	1 745	1 898
8	44	213	107	75	48	109	156	95
9	251	177	195	178	203	203	186	265
10	4 189	6 503	5 263	4 229	4 431	5 081	3 480	3 504
11	2 691	3 215	2 545	2 360	2 807	2 435	2 320	1 892
12	\$10 073	\$12 223	\$ 9 980	\$ 9 040	\$10 378	\$10 399	\$ 9 471	\$ 8 582
13	1 436	2 244	2 302	1 438	1 963	2 224	1 864	1 924
14	3 473	1 515	1 796	1 294	3 499	1 745	2 527	1 376
15	3 686	4 290	3 774	4 320	3 047	4 309	3 504	3 354
16	36	85	34	53	53	72	108	118
17	710	490	556	570	595	503	708	802
18	396	395	370	480	384	417	457	413
19	183	2 938	965	720	634	912	178	431
20	112	216	149	116	123	171	92	109
21	41	50	34	47	80	46	33	55
22	\$ 3 876	\$ 4 265	\$ 4 329	\$ 3 841	\$ 3 953	\$ 4 321	\$ 4 322	\$ 3 359
23	168	356	261	144	242	260	219	166
24	382	461	410	335	539	436	412	398
25	1 093	644	1 261	1 180	919	1 111	1 505	884
26	1 209	1 523	1 232	1 260	1 235	1 361	1 083	1 025
27	537	745	629	446	496	677	623	444
28	230	323	288	310	265	250	230	258
29	257	213	248	166	257	226	250	184
30	\$ 6 197	\$ 7 958	\$ 5 651	\$ 5 199	\$ 6 425	\$ 6 078	\$ 5 149	\$ 5 223
31	1 967	1 944	1 850	1 815	1 917	1 749	1 860	1 826
32	\$ 4 230	\$ 6 014	\$ 3 801	\$ 3 384	\$ 4 508	\$ 4 329	\$ 3 289	\$ 3 397
33	13.5	11.8	10.4	10.9	12.7	11.9	10.8	10.7
34	\$ 4 027	\$ 4 804	\$ 3 308	\$ 3 195	\$ 4 110	\$ 3 913	\$ 3 086	\$ 3 190
35	5 981	8 740	6 105	4 493	6 394	5 568	4 454	4 187
36	-180	-1 177	-824	226	-353	93	238	623
37	72	48	50	45	38	42	45	23
38	175	245	202	193	216	207	239	206
39	\$ 57.66	\$ 49.97	\$ 49.36	\$ 46.86	\$ 47.98	\$ 50.29	\$ 39.58	\$ 41.66
40	35.45	25.38	30.56	29.32	27.14	29.35	25.84	25.17
41	\$ 24.21	\$ 24.59	\$ 18.80	\$ 17.54	\$ 20.84	\$ 20.94	\$ 13.74	\$ 16.49
42	\$ 73	\$113	\$ 80	\$ 79	\$ 62	\$ 77	\$ 51	\$ 72
43	78	117	89	89	61	84	64	82
44	31.84	23.68	26.38	20.89	35.87	29.30	21.98	24.54
45	180	208	181	161	164	177	127	154
46	81.2	88.3	78.7	75.6	75.0	81.7	55.6	74.8
47	35.4	41.2	39.6	46.3	39.3	42.4	33.1	35.9
48	23.5	20.0	22.8	17.1	23.2	17.8	19.4	19.5
49	.2	1.0	...	1.2	.7	3.3	.2	.2
50	2.2	11.6	2.7	2.4	1.9	6.4	.2	1.5
51	1.9	3.9	5.1	1.4	2.0	1.6	2.9	4.0
52	36.8	22.3	29.8	31.6	32.9	28.5	44.2	38.9
53	68.2	68.0	69.8	63.5	61.4	66.2	65.1	71.6
54	42.0	45.3	40.6	33.8	38.4	37.7	38.3	38.9
55	76.7	26.8	30.0	20.0	20.0	23.6	10.0	20.0
56	5.0	...	14.0	...	20.0	...	12.0	...
57	14.2	22.0	23.5	23.4	14.0	18.5	26.7	23.5
58	\$ 39.44	\$ 29.94	\$ 35.62	\$ 32.46	\$ 31.47	\$ 35.83	\$ 27.56	\$ 29.70
59	140	121	121	128	139	124	137	129
60	19	38	18	21	16	21	17	18
61	\$206	\$113	\$225	\$223	\$221	\$226	\$223	\$214
62	220	210	197	171	229	189	177	174
63	\$ 12.29	\$ 8.79	\$ 11.01	\$ 12.03	\$ 10.29	\$ 10.98	\$ 12.69	\$ 10.97
64	21.19	14.00	18.41	18.59	16.88	16.64	23.39	19.27
65	.96	1.46	1.29	.75	1.12	1.26	.92	.69
66	2.19	1.88	2.03	1.74	2.49	2.11	1.72	1.93
67	1.05	1.06	1.09	1.35	.95	.89	.76	.98

(Continued)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—Continued

Accounting Item		Henry	McDon- ough	Knox	Bureau
Capital investment, total.....	1	\$47 305	\$46 605	\$53 991	\$51 917
Land.....	2	24 542	25 966	29 314	26 844
Land improvements.....	3	950	1 004	1 219	1 079
Farm buildings.....	4	5 398	4 101	5 212	5 577
Horses.....	5	158	149	179	170
Cattle.....	6	3 604	2 273	4 170	4 007
Hogs.....	7	3 054	3 222	2 795	3 387
Sheep.....	8	105	67	113	204
Poultry.....	9	200	197	140	220
Feed and grain.....	10	6 199	6 671	7 506	7 000
Machinery and equipment.....	11	3 095	2 955	3 343	3 429
Income, net increases, total.....	12	\$13 113	\$12 743	\$13 756	\$14 191
Cattle.....	13	2 912	1 921	2 436	3 253
Dairy sales.....	14	754	565	1 084	1 105
Hogs.....	15	6 998	7 137	6 162	6 479
Sheep.....	16	156	72	96	235
Poultry and eggs.....	17	584	580	370	614
Farm products used in household.....	18	403	408	451	458
Feed and grain.....	19	1 136	1 870	2 954	1 853
AAA payment.....	20	134	141	160	142
Labor and miscellaneous.....	21	36	49	43	52
Expenses, net decreases, total.....	22	\$ 6 040	\$ 5 530	\$ 5 139	\$ 6 056
Land improvements.....	23	246	211	322	314
Farm buildings.....	24	494	389	449	437
Feed and grain.....	25	2 045	1 635	747	2 341
Machinery and equipment.....	26	1 616	1 692	1 723	1 495
Hired labor.....	27	993	938	1 166	854
Taxes.....	28	426	404	462	318
Livestock and miscellaneous.....	29	220	261	270	297
Receipts less expenses.....	30	\$ 7 073	\$ 7 213	\$ 8 617	\$ 8 135
Unpaid labor.....	31	1 750	1 737	1 783	1 849
Net farm earnings.....	32	\$ 5 323	\$ 5 476	\$ 6 834	\$ 6 286
Rate earned on investment, percent.....	33	11.3	11.7	12.7	12.1
Labor and management earnings.....	34	\$ 4 319	\$ 4 439	\$ 5 504	\$ 4 959
Excess of sales over expenses.....	35	5 858	7 925	8 659	6 429
Increase in inventory.....	36	812	-1 120	-493	1 248
Number of farms included.....	37	70	59	49	42
Size of farm, acres.....	38	244	231	308	227
Gross earnings per acre.....	39	\$ 53.76	\$ 55.24	\$ 44.62	\$ 62.54
Total expenses per acre.....	40	31.94	31.50	22.45	34.84
Net earnings per acre.....	41	\$ 21.82	\$ 23.74	\$ 22.17	\$ 27.70
Value of land per acre.....	42	\$101	\$113	\$ 95	\$118
Value of improved land per acre.....	43	108	121	111	125
Value of buildings per acre.....	44	22.13	17.78	16.91	24.58
Total investment per acre.....	45	194	202	175	229
Percent of land area tillable.....	46	81.2	86.3	76.7	87.2
Percent of tillable land in:					
Corn.....	47	46.3	45.5	43.7	46.6
Oats.....	48	17.2	11.0	12.5	20.5
Wheat.....	49	.8	1.7	.7	.1
Soybeans for grain.....	50	6.9	17.7	14.5	4.2
Other cultivated crops.....	51	2.1	2.4	1.4	2.1
Hay and pasture.....	52	26.7	21.7	27.2	26.5
Bushels per acre:					
Corn.....	53	62.8	59.7	60.2	70.8
Oats.....	54	41.3	28.9	34.3	46.0
Wheat.....	55	21.9	21.8	24.0	25.0
Barley.....	56	..	..	..	..
Soybeans.....	57	26.1	26.7	24.8	26.0
Feed fed per acre.....	58	\$ 38.06	\$ 36.42	\$ 26.61	\$ 43.97
Returns for \$100 feed fed.....	59	126	126	128	121
Number of litters farrowed.....	60	33	35	29	32
Returns per litter.....	61	\$205	\$216	\$219	\$216
Dairy returns per cow.....	62	164	146	164	179
Horse and machinery cost per crop acre.....	63	\$ 10.87	\$ 10.68	\$ 9.56	\$ 9.89
Labor cost per crop acre.....	64	16.56	15.28	14.83	15.95
Land improvements cost per acre.....	65	1.01	.91	1.04	1.38
Farm buildings cost per acre.....	66	2.03	1.69	1.46	1.93
Taxes per acre.....	67	1.39	1.36	1.23	1.03

(Continued)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—*Continued*

	Marshall- Putnam	Peoria	Fulton	Hender- son, Hancock	Mercer	Warren	Stark	McLean
1	\$60 527	\$43 596	\$36 892	\$41 744	\$51 210	\$43 858	\$48 029	\$61 800
2	33 764	23 675	19 850	23 777	25 658	24 046	26 760	36 616
3	1 016	925	740	803	927	860	689	1 019
4	5 986	4 716	3 704	3 269	5 015	4 120	4 427	6 218
5	181	179	128	267	216	307	126	193
6	4 051	2 785	2 729	2 914	4 872	3 859	1 901	3 341
7	3 775	2 674	2 199	2 399	3 158	2 979	3 150	2 818
8	380	259	95	160	120	151	737	252
9	189	194	420	121	172	193	171	199
10	7 621	5 405	4 384	5 242	7 936	4 658	6 871	7 811
11	3 564	2 784	2 643	2 792	3 136	2 685	3 197	3 333
12	\$16 248	\$11 140	\$12 353	\$11 978	\$13 452	\$12 049	\$11 941	\$14 701
13	3 013	1 482	2 002	1 988	3 317	2 867	1 081	1 988
14	1 007	691	969	488	608	472	743	997
15	9 046	5 528	5 196	5 515	6 890	5 810	5 592	5 451
16	256	206	122	121	59	84	458	148
17	421	508	2 268	343	405	398	439	538
18	418	427	434	368	408	413	435	347
19	1 828	2 095	1 080	2 942	1 525	1 786	2 961	4 992
20	164	108	160	167	199	124	140	169
21	95	95	122	46	41	95	92	71
22	\$ 5 954	\$ 4 311	\$ 6 059	\$ 4 843	\$ 6 135	\$ 5 539	\$ 4 571	\$ 6 203
23	278	252	214	211	208	252	236	268
24	506	374	373	297	491	385	408	502
25	1 534	846	2 359	1 295	1 711	1 916	786	1 447
26	1 807	1 431	1 413	1 541	1 776	1 591	1 676	1 945
27	1 064	831	937	888	1 077	802	829	1 231
28	470	324	398	381	561	348	419	508
29	295	253	365	230	311	245	217	302
30	\$10 294	\$ 6 829	\$ 6 294	\$ 7 135	\$ 7 317	\$ 6 510	\$ 7 370	\$ 8 498
31	1 923	1 510	1 832	1 760	1 816	1 620	1 731	1 618
32	\$ 8 371	\$ 5 319	\$ 4 462	\$ 5 375	\$ 5 501	\$ 4 890	\$ 5 639	\$ 6 880
33	13.8	12.2	12.1	12.9	10.7	11.1	11.7	11.1
34	\$ 6 657	\$ 4 334	\$ 3 973	\$ 4 635	\$ 4 233	\$ 4 691	\$ 4 548	\$ 5 073
35	10 992	7 665	5 781	6 799	8 961	4 829	6 898	8 982
36	-1 116	-1 263	79	-32	-2 052	1 268	37	-831
37	40	41	35	54	29	32	32	94
38	301	227	259	269	301	247	245	285
39	\$ 53.91	\$ 49.05	\$ 47.71	\$ 44.46	\$ 44.73	\$ 48.70	\$ 48.82	\$ 51.56
40	26.14	25.63	30.48	24.51	26.44	28.93	25.76	27.43
41	\$ 27.77	\$ 23.42	\$ 17.23	\$ 19.95	\$ 18.29	\$ 19.77	\$ 23.06	\$ 24.13
42	\$112	\$104	\$ 77	\$ 88	\$ 85	\$ 97	\$109	\$128
43	125	116	95	99	98	111	115	132
44	19.86	20.77	14.31	12.13	16.68	16.65	18.10	21.81
45	201	192	142	155	170	177	196	217
46	81.6	81.4	69.4	79.9	73.3	76.0	87.0	92.2
47	44.6	42.2	41.6	42.4	49.1	47.7	47.2	45.1
48	18.9	16.4	10.5	10.7	14.4	13.2	20.0	16.5
49	1.4	1.6	3.4	2.1	.6	1.9	...	...
50	12.2	12.8	12.9	17.8	6.6	7.7	10.2	16.2
51	.2	2.6	1.3	.9	1.6	.9	.8	2.1
52	22.7	24.4	30.3	26.1	27.7	28.6	21.8	20.1
53	63.6	62.2	54.4	58.8	60.3	66.4	62.9	59.0
54	39.2	29.6	28.0	26.8	30.4	31.6	35.4	33.2
55	25.7	29.0	15.8	21.1	16.7	24.9	...	40.0
56	...	...	...	...	...	...	...	...
57	27.9	27.6	27.0	26.0	24.2	25.1	25.9	24.8
58	\$ 35.46	\$ 31.51	\$ 30.54	\$ 25.59	\$ 31.59	\$ 33.13	\$ 29.08	\$ 27.45
59	132	122	138	127	122	121	122	120
60	39	28	27	25	32	26	27	26
61	\$237	\$206	\$223	\$220	\$195	\$215	\$244	\$227
62	181	155	175	148	160	143	145	170
63	\$ 9.17	\$ 9.83	\$ 10.52	\$ 9.67	\$ 10.81	\$ 11.67	\$ 9.57	\$ 9.12
64	13.62	13.92	18.15	14.39	15.79	15.07	13.57	12.11
65	.92	1.11	.83	.78	.69	1.02	.96	.94
66	1.68	1.59	1.44	1.10	1.63	1.56	1.67	1.76
67	1.25	1.24	1.28	1.09	1.34	1.02	1.43	1.47

(Continued)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—Continued

Accounting Item		Tazewell	Ford	Livingston	Woodford
Capital investment, total.....	1	\$51 901	\$58 767	\$47 736	\$53 437
Land.....	2	31 042	36 530	30 128	32 276
Land improvements.....	3	1 093	1 015	954	987
Farm buildings.....	4	5 344	5 319	4 617	5 006
Horses.....	5	189	255	191	185
Cattle.....	6	2 655	3 401	1 937	2 976
Hogs.....	7	1 901	1 482	998	2 005
Sheep.....	8	468	311	56	325
Poultry.....	9	200	211	369	286
Feed and grain.....	10	5 802	7 036	5 552	6 478
Machinery and equipment.....	11	3 207	3 207	2 934	2 913
Income, net increases, total.....	12	\$13 051	\$12 649	\$10 803	\$12 910
Cattle.....	13	1 355	1 733	1 269	1 839
Dairy sales.....	14	1 437	900	890	923
Hogs.....	15	4 162	3 046	1 935	4 258
Sheep.....	16	312	128	46	196
Poultry and eggs.....	17	511	595	1 426	910
Farm products used in household.....	18	428	359	377	420
Feed and grain.....	19	4 562	5 609	4 648	4 153
AAA payment.....	20	185	188	153	169
Labor and miscellaneous.....	21	99	91	59	42
Expenses, net decreases, total.....	22	\$ 4 618	\$ 4 477	\$ 3 607	\$ 4 705
Land improvements.....	23	255	273	252	286
Farm buildings.....	24	471	382	375	418
Feed and grain.....	25	496	348	242	670
Machinery and equipment.....	26	1 707	1 762	1 495	1 633
Hired labor.....	27	828	940	649	910
Taxes.....	28	599	500	358	490
Livestock and Miscellaneous.....	29	262	272	236	298
Receipts less expenses.....	30	\$ 8 433	\$ 8 172	\$ 7 196	\$ 8 205
Unpaid labor.....	31	1 740	1 611	1 588	1 639
Net farm earnings.....	32	\$ 6 693	\$ 6 561	\$ 5 608	\$ 6 566
Rate earned on investment, percent.....	33	12.9	11.2	11.7	12.3
Labor and management earnings.....	34	\$ 5 467	\$ 4 844	\$ 4 555	\$ 5 194
Excess of sales over expenses.....	35	8 403	8 439	6 547	8 306
Increase in inventory.....	36	-398	-626	272	-521
Number of farms included.....	37	71	64	70	81
Size of farm, acres.....	38	258	309	229	250
Gross earnings per acre.....	39	\$ 50.55	\$ 40.92	\$ 47.24	\$ 51.74
Total expenses per acre.....	40	24.63	19.69	22.72	25.42
Net earnings per acre.....	41	\$ 25.92	\$ 21.23	\$ 24.52	\$ 26.32
Value of land per acre.....	42	\$120	\$118	\$132	\$129
Value of improved land per acre.....	43	127	120	134	137
Value of buildings per acre.....	44	20.70	17.21	20.19	20.06
Total investment per acre.....	45	201	190	209	214
Percent of land area tillable.....	46	86.8	93.6	92.2	88.5
Percent of tillable land in:					
Corn.....	47	42.5	41.9	45.1	46.1
Oats.....	48	12.7	21.4	20.7	17.6
Wheat.....	49	5.4	1.0	.5	1.0
Soybeans for grain.....	50	16.8	13.6	14.0	10.9
Other cultivated crops.....	51	1.8	1.8	1.0	2.0
Hay and pasture.....	52	20.8	20.3	18.7	22.4
Bushels per acre:					
Corn.....	53	59.1	54.4	73.4	63.4
Oats.....	54	31.3	29.9	34.7	34.6
Wheat.....	55	21.7	30.4	20.0	18.2
Barley.....	56				
Soybeans.....	57	27.8	22.9	24.6	26.9
Feed fed per acre.....	58	\$ 22.87	\$ 18.30	\$ 18.77	\$ 26.88
Returns for \$100 feed fed.....	59	138	118	137	126
Number of litters farrowed.....	60	19	15	8	20
Returns per litter.....	61	\$199	\$201	\$251	\$227
Dairy returns per cow.....	62	226	169	175	175
Horse and machinery cost per crop acre.....	63	\$ 9.52	\$ 7.72	\$ 8.79	\$ 9.34
Labor cost per crop acre.....	64	12.84	10.00	11.83	13.06
Land improvements cost per acre.....	65	.99	.88	1.10	1.15
Farm buildings cost per acre.....	66	1.82	1.24	1.64	1.66
Taxes per acre.....	67	1.51	1.33	1.34	1.65

(Continued)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—Continued

	La Salle	Cham- paign	Iroquois	Vermilion	Platt, Macon, DeWitt	Sangamon	Kankakee	Logan, Menard
1	\$62 486	\$53 358	\$44 794	\$31 134	\$58 038	\$51 911	\$42 974	\$48 189
2	35 601	36 553	26 560	18 689	39 084	32 810	24 590	29 776
3	1 244	573	1 003	1 101	1 070	1 061	924	653
4	7 164	4 012	4 229	2 866	4 146	4 033	5 018	4 231
5	147	153	228	97	209	188	125	233
6	3 165	1 740	1 731	1 489	2 486	3 975	2 624	3 082
7	2 311	717	1 222	674	1 394	2 228	1 109	1 770
8	128	43	521	355	48	58	44	90
9	221	153	177	98	174	151	215	193
10	8 927	6 335	6 543	3 671	6 127	4 362	5 230	4 915
11	3 578	3 079	2 580	2 094	3 300	3 045	3 095	3 246
12	\$14 673	\$11 395	\$ 9 565	\$ 7 404	\$10 998	\$10 879	\$10 572	\$11 229
13	1 728	753	826	724	1 358	2 788	920	1 806
14	1 255	853	808	769	661	795	2 362	447
15	4 784	1 891	2 977	1 867	2 855	5 064	1 774	4 307
16	142	29	238	209	42	52	46	76
17	466	454	575	323	481	381	535	604
18	423	353	388	244	419	423	368	442
19	5 578	6 815	3 541	3 058	4 978	1 128	4 357	3 358
20	214	204	172	147	159	183	125	146
21	83	43	40	63	45	65	85	43
22	\$ 5 362	\$ 2 971	\$ 3 390	\$ 3 246	\$ 4 257	\$ 5 505	\$ 4 116	\$ 4 896
23	358	154	257	324	235	230	477	176
24	538	275	294	256	313	384	458	316
25	890	46	169	219	246	1 545	331	1 207
26	1 825	1 527	1 406	1 143	1 784	1 667	1 625	1 656
27	1 020	379	596	835	944	987	648	875
28	444	460	445	339	519	426	310	463
29	287	130	223	130	216	266	267	203
30	\$ 9 311	\$ 8 424	\$ 6 175	\$ 4 158	\$ 6 741	\$ 5 374	\$ 6 456	\$ 6 333
31	1 798	1 735	1 501	1 015	1 466	1 640	1 802	1 557
32	\$ 7 513	\$ 6 689	\$ 4 674	\$ 3 143	\$ 5 275	\$ 3 734	\$ 4 654	\$ 4 776
33	12.0	12.5	10.4	10.1	9.1	7.2	10.8	9.9
34	\$ 5 705	\$ 5 250	\$ 3 662	\$ 2 388	\$ 3 560	\$ 2 381	\$ 3 801	\$ 3 598
35	9 411	8 433	7 885	4 190	8 135	6 894	5 915	5 758
36	-523	-362	-2 098	-276	-1 813	-1 943	173	133
37	59	36	30	36	40	29	46	45
38	277	260	233	170	302	279	245	271
39	\$ 52.89	\$ 43.88	\$ 41.07	\$ 43.66	\$ 36.36	\$ 39.02	\$ 43.12	\$ 41.48
40	25.81	18.12	21.00	25.13	18.92	25.63	24.14	23.84
41	\$ 27.08	\$ 25.76	\$ 20.07	\$ 18.53	\$ 17.44	\$ 13.39	\$ 18.98	\$ 17.64
42	\$128	\$141	\$114	\$110	\$129	\$118	\$100	\$110
43	135	144	115	113	134	123	102	113
44	25.83	15.45	18.16	16.90	13.71	14.47	20.46	15.63
45	225	205	192	184	192	186	175	178
46	88.2	92.5	93.6	92.1	90.7	87.4	91.9	92.2
47	48.1	36.4	40.6	32.2	39.4	32.5	42.8	37.8
48	19.5	12.4	16.0	9.1	9.9	9.8	16.2	10.1
49	.5	2.0	.6	4.1	5.2	6.8	1.2	7.7
50	8.4	32.1	20.0	27.6	26.2	25.5	20.2	21.8
51	2.5	9	2.2	1.7	.7	2.1	1.0	2.3
52	21.0	16.2	20.6	25.3	18.6	23.3	18.6	20.3
53	63.9	53.6	46.9	54.5	42.3	31.0	51.0	41.9
54	41.5	30.5	31.1	33.3	25.9	27.7	32.2	29.7
55	30.8	19.2	26.2	24.4	22.5	21.3	22.2	20.6
56	...	...	...	...	...	...	...	...
57	23.3	23.3	23.0	23.8	24.3	20.5	20.6	22.8
58	\$ 26.19	\$ 12.24	\$ 18.28	\$ 17.41	\$ 15.41	\$ 25.93	\$ 17.96	\$ 21.70
59	120	134	134	138	123	131	134	129
60	22	9	12	15	16	24	7	20
61	\$240	\$256	\$254	\$234	\$219	\$208	\$247	\$230
62	201	164	201	170	153	162	233	125
63	\$ 9.05	\$ 7.68	\$ 8.21	\$ 9.27	\$ 8.03	\$ 8.97	\$ 8.70	\$ 8.71
64	12.88	9.67	10.98	13.67	9.74	12.52	10.26	11.23
65	1.29	.59	1.10	1.91	.78	.82	1.95	.65
66	1.94	1.06	1.26	1.51	.99	1.33	1.87	1.17
67	1.34	1.57	1.60	1.58	1.46	1.33	1.07	1.44

(Continued)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—*Continued*

Accounting Item		Will	Kendall	Edgar, Coles, Douglas	Moultrie
Capital investment, total.....	1	\$42 465	\$53 960	\$55 082	\$51 872
Land.....	2	22 878	26 579	35 796	36 031
Land improvements.....	3	994	1 241	1 028	650
Farm buildings.....	4	5 593	7 211	3 688	3 637
Horses.....	5	184	174	160	152
Cattle.....	6	3 286	5 631	2 586	2 010
Hogs.....	7	795	2 648	1 578	812
Sheep.....	8	20	243	96	53
Poultry.....	9	257	298	178	153
Feed and grain.....	10	5 427	6 893	6 490	5 388
Machinery and equipment.....	11	3 031	3 042	3 482	2 986
Income, net increases, total.....	12	\$10 146	\$13 036	\$13 622	\$12 416
Cattle.....	13	1 825	2 179	1 848	1 170
Dairy sales.....	14	2 422	1 927	564	1 137
Hogs.....	15	1 481	6 203	3 528	1 608
Sheep.....	16	10	116	61	41
Poultry and eggs.....	17	729	953	507	404
Farm products used in household.....	18	398	399	409	379
Feed and grain.....	19	3 037	959	6 409	7 424
AAA payment.....	20	142	166	203	203
Labor and miscellaneous.....	21	102	134	93	50
Expenses, net decreases, total.....	22	\$ 4 380	\$ 5 147	\$ 4 701	\$ 3 881
Land improvements.....	23	308	290	267	183
Farm buildings.....	24	468	564	293	274
Feed and grain.....	25	664	1 351	716	
Machinery and equipment.....	26	1 640	1 383	1 797	1 822
Hired labor.....	27	808	921	909	881
Taxes.....	28	270	338	524	539
Livestock and miscellaneous.....	29	222	300	195	182
Receipts less expenses.....	30	\$ 5 766	\$ 7 889	\$ 8 921	\$ 8 535
Unpaid labor.....	31	1 689	1 849	1 669	1 594
Net farm earnings.....	32	\$ 4 077	\$ 6 040	\$ 7 252	\$ 6 941
Rate earned on investment, percent.....	33	9.6	11.2	13.2	13.4
Labor and management earnings.....	34	\$ 3 306	\$ 4 761	\$ 5 748	\$ 5 573
Excess of sales over expenses.....	35	5 753	9 352	9 991	8 776
Increase in inventory.....	36	-385	-1 862	-1 479	-620
Number of farms included.....	37	55	33	42	39
Size of farm, acres.....	38	215	223	299	323
Gross earnings per acre.....	39	\$ 47.23	\$ 58.56	\$ 45.62	\$ 38.48
Total expenses per acre.....	40	28.25	31.43	21.33	16.97
Net earnings per acre.....	41	\$ 18.98	\$ 27.13	\$ 24.29	\$ 21.51
Value of land per acre.....	42	\$107	\$119	\$120	\$112
Value of improved land per acre.....	43	109	124	125	119
Value of buildings per acre.....	44	26.04	32.39	12.35	11.27
Total investment per acre.....	45	198	242	184	161
Percent of land area tillable.....	46	90.2	88.9	88.9	87.7
Percent of tillable land in:					
Corn.....	47	42.0	45.9	38.9	36.1
Oats.....	48	18.6	22.5	11.0	9.2
Wheat.....	49	1.6	1.4	2.7	2.5
Soybeans for grain.....	50	14.7	5.0	29.0	35.3
Other cultivated crops.....	51	2.2	1.1	1.9	.8
Hay and pasture.....	52	20.9	24.1	16.5	16.1
Bushels per acre: Corn.....	53	52.0	61.1	55.4	47.1
Oats.....	54	40.3	48.1	37.5	31.8
Wheat.....	55	25.5	33.2	22.1	23.7
Barley.....	56	13.3			
Soybeans.....	57	20.4	22.0	23.8	24.5
Feed fed per acre.....	58	\$ 23.46	\$ 41.50	\$ 18.29	\$ 10.62
Returns for \$100 feed fed.....	59	134	127	125	136
Number of litters farrowed.....	60	6	26	16	8
Returns per litter.....	61	\$217	\$241	\$243	\$200
Dairy returns per cow.....	62	260	234	128	190
Horse and machinery cost per crop acre.....	63	\$ 10.36	\$ 8.83	\$ 8.09	\$ 7.55
Labor cost per crop acre.....	64	13.97	15.81	10.46	9.48
Land improvements cost per acre.....	65	1.43	1.30	.89	.57
Farm buildings cost per acre.....	66	2.18	2.53	.98	.85
Taxes per acre.....	67	1.13	1.28	1.51	1.46

(Continued)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—Continued

	Mason, Cass	Grundy	Scott, Morgan	Mont- gomery, Macoupin	Christian, Shelby	Adams, Schuyler	Brown, Pike	Greene, Jersey
1	\$39 567	\$55 879	\$42 745	\$27 798	\$35 859	\$32 952	\$34 837	\$31 632
2	24 305	33 067	26 711	13 414	22 001	16 639	16 723	16 656
3	752	1 063	559	683	641	869	883	819
4	3 276	5 561	2 826	3 444	2 939	3 643	3 341	3 475
5	242	242	272	252	168	245	294	279
6	1 939	2 592	2 323	2 605	2 400	2 883	3 377	2 754
7	1 486	1 981	1 918	1 408	892	1 811	3 245	1 398
8	16	38	195	124	52	161	233	42
9	155	223	162	159	199	132	115	163
10	4 899	7 544	4 973	3 362	3 749	4 205	4 660	3 419
11	2 497	3 568	2 806	2 347	2 818	2 364	1 966	2 627
12	\$ 9 860	\$12 973	\$10 632	\$ 9 286	\$ 9 562	\$ 8 556	\$12 002	\$ 9 669
13	1 193	1 653	1 557	1 296	1 297	1 648	2 168	1 085
14	366	2 409	562	1 751	1 070	433	527	2 526
15	3 466	3 213	4 200	3 774	2 905	4 344	7 512	3 361
16	22	23	145	85	38	130	139	20
17	518	563	448	481	536	389	288	435
18	381	376	382	378	366	359	375	465
19	3 671	4 461	3 118	1 294	3 094	1 026	807	1 592
20	205	226	180	146	199	177	156	93
21	38	49	40	81	57	50	30	92
22	\$ 3 994	\$ 4 172	\$ 3 685	\$ 3 847	\$ 3 208	3 720	6 359	3 911
23	176	439	151	269	185	299	200	194
24	254	417	259	289	236	309	353	300
25	640	124	447	1 121	358	690	3 447	731
26	1 438	1 767	1 426	1 266	1 374	1 295	1 108	1 248
27	908	785	800	452	518	610	663	890
28	396	374	408	271	373	340	365	344
29	182	266	194	179	164	177	223	204
30	\$ 5 866	\$ 8 801	\$ 6 947	\$ 5 439	\$ 6 354	\$ 4 836	\$ 5 643	\$ 5 758
31	1 628	1 930	1 439	1 669	1 636	1 582	1 533	1 700
32	\$ 4 238	\$ 6 871	\$ 5 508	\$ 3 770	\$ 4 718	\$ 3 254	\$ 4 110	\$ 4 058
33	10.7	12.3	12.9	13.6	13.2	9.9	11.8	12.8
34	\$ 3 422	\$ 5 498	\$ 4 476	\$ 3 539	\$ 4 102	\$ 2 689	\$ 3 502	\$ 3 583
35	5 742	9 219	6 980	5 657	5 877	4 768	6 157	5 154
36	-257	-794	-415	-596	111	-291	-889	139
37	43	19	33	46	45	35	28	49
38	311	309	266	225	245	297	313	262
39	\$ 31.66	\$ 41.98	\$ 39.90	\$ 41.25	\$ 39.06	\$28.80	\$ 38.30	\$ 36.98
40	18.05	19.74	19.23	24.50	19.79	17.85	25.18	21.46
41	\$ 13.61	\$ 22.24	\$ 20.67	\$ 16.75	\$ 19.27	\$ 10.95	\$ 13.12	\$ 15.52
42	\$ 78	\$107	\$100	\$ 60	\$ 90	\$ 56	\$ 53	\$ 64
43	85	115	109	65	93	69	65	73
44	10.52	18.00	10.60	15.30	12.01	12.26	10.66	13.29
45	127	181	160	123	146	111	111	121
46	84.2	83.3	83.8	81.7	89.9	69.3	65.9	76.0
47	33.1	44.6	39.1	25.5	35.6	30.9	39.9	35.2
48	11.0	19.2	7.6	7.3	9.4	8.2	10.2	5.5
49	12.6	.1	9.4	11.1	3.5	6.6	4.8	12.5
50	18.9	15.0	23.0	23.2	29.1	17.5	4.8	12.9
51	6.0	.7	.9	3.5	1.3	1.3	3.4	4.2
52	18.4	20.4	20.0	29.4	21.1	35.5	36.9	29.7
53	43.1	58.1	46.4	37.9	39.4	47.5	48.4	52.3
54	23.8	37.9	25.6	29.5	31.2	21.2	21.5	20.5
55	22.0	20.0	21.4	22.7	23.0	17.0	18.7	22.0
56	...	...	...	22.5	...	...	10.0	24.3
57	22.7	22.2	21.8	23.1	23.5	24.9	22.0	23.0
58	\$ 13.82	\$ 19.84	\$ 21.28	\$ 23.06	\$ 18.48	\$ 18.26	\$ 26.34	\$ 20.56
59	137	133	127	148	136	133	132	145
60	15	15	21	18	14	20	39	18
61	\$226	\$227	\$217	\$238	\$224	\$234	\$213	\$193
62	137	251	176	248	193	132	173	235
63	\$ 7.32	\$ 8.57	\$ 8.27	\$ 9.96	\$ 7.88	\$ 9.39	\$ 9.38	\$ 9.67
64	11.30	11.83	11.18	14.11	11.05	13.54	14.77	16.41
65	.56	1.42	.57	1.20	.76	1.01	.64	.74
66	.82	1.35	.97	1.28	.96	1.04	1.13	1.15
67	1.09	1.02	1.29	.92	1.25	.94	.81	1.08

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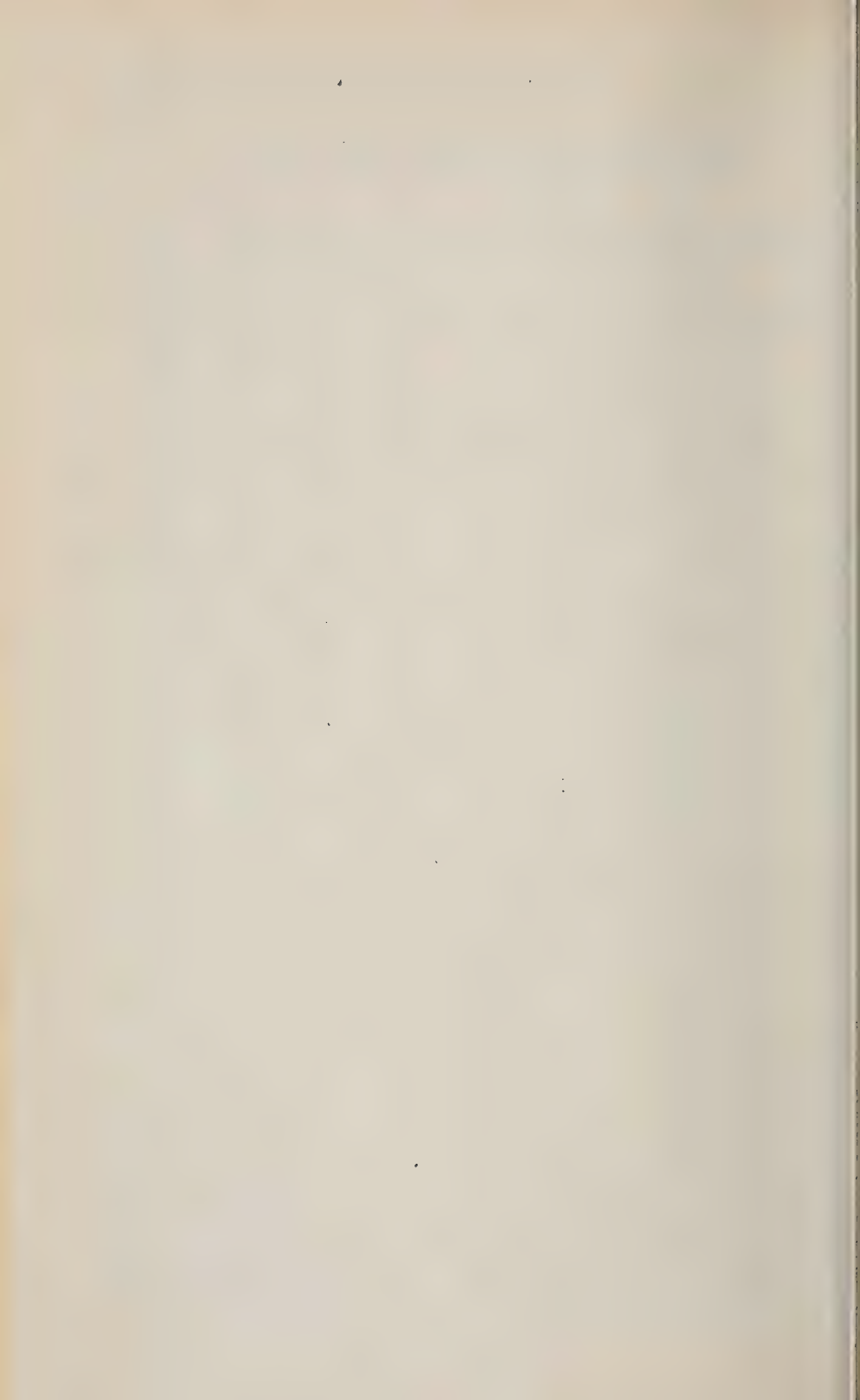
TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—Continued

Accounting Item	Madison	Randolph	St. Clair, Monroe	Bond, Clinton	
Capital investment, total.	1	\$20 466	\$18 392	\$25 904	\$21 689
Land.	2	10 271	8 222	13 945	10 949
Land improvements.	3	365	605	427	560
Farm buildings.	4	2 652	2 363	3 214	2 800
Horses.	5	249	312	392	235
Cattle.	6	1 689	1 665	1 471	1 770
Hogs.	7	585	501	776	605
Sheep.	8	9	66	55	24
Poultry.	9	199	214	278	210
Feed and grain.	10	2 101	2 450	2 800	2 205
Machinery and equipment.	11	2 346	1 994	2 546	2 331
Income, net increases, total.	12	\$ 7 357	\$ 6 076	\$ 7 271	\$ 7 496
Cattle.	13	657	639	577	500
Dairy sales.	14	2 981	1 451	1 782	2 964
Hogs.	15	1 503	1 584	1 757	1 611
Sheep.	16	10	79	35	36
Poultry and eggs.	17	602	655	829	636
Farm products used in household.	18	376	453	484	427
Feed and grain.	19	1 076	1 015	1 596	1 108
AAA payment.	20	126	136	157	149
Labor and miscellaneous.	21	26	64	54	65
Expenses, net decreases, total.	22	\$ 3 088	\$ 2 387	\$ 2 894	\$ 3 190
Land improvements.	23	201	237	169	245
Farm buildings.	24	245	196	301	218
Feed and grain.	25	693	288	317	646
Machinery and equipment.	26	1 181	966	1 174	1 170
Hired labor.	27	375	402	512	488
Taxes.	28	183	171	239	230
Livestock and miscellaneous.	29	210	127	182	193
Receipts less expenses.	30	\$ 4 269	\$ 3 689	\$ 4 377	\$ 4 306
Unpaid labor.	31	1 960	1 546	1 840	1 557
Net farm earnings.	32	\$ 2 309	\$ 2 143	\$ 2 537	\$ 2 749
Rate earned on investment, percent.	33	11.3	11.7	9.8	12.7
Labor and management earnings.	34	\$ 2 423	\$ 2 256	\$ 2 359	\$ 2 677
Excess of sales over expenses.	35	3 416	2 731	3 300	3 268
Increase in inventory.	36	477	505	593	611
Number of farms included.	37	63	50	50	47
Size of farm, acres.	38	187	227	232	246
Gross earnings per acre.	39	\$ 39.26	\$ 26.79	\$ 31.38	\$ 30.50
Total expenses per acre.	40	26.94	17.34	20.43	19.32
Net earnings per acre.	41	\$ 12.32	\$ 9.45	\$ 10.95	\$ 11.18
Value of land per acre.	42	\$ 55	\$ 36	\$ 60	\$ 45
Value of improved land per acre.	43	57	40	68	49
Value of buildings per acre.	44	14.15	10.42	13.87	11.39
Total investment per acre.	45	109	81	112	88
Percent of land area tillable.	46	86.8	82.3	80.7	79.8
Percent of tillable land in:					
Corn.	47	24.6	20.5	25.1	24.8
Oats.	48	6.7	9.1	9.1	11.5
Wheat.	49	22.6	24.2	25.7	15.1
Soybeans for grain.	50	6.7	5.0	5.5	12.2
Other cultivated crops.	51	6.7	6.1	8.8	7.5
Hay and pasture.	52	32.7	35.1	25.8	28.9
Bushels per acre: Corn.	53	41.5	37.6	48.5	28.8
Oats.	54	28.8	27.6	26.1	24.8
Wheat.	55	23.7	22.3	21.2	21.8
Barley.	56	23.8	27.5	29.8	21.6
Soybeans.	57	18.5	16.0	21.9	24.1
Feed fed per acre.	58	\$ 20.38	\$ 14.80	\$ 16.53	\$ 15.69
Returns for \$100 feed fed.	59	157	141	139	157
Number of litters farrowed.	60	8	6	11	10
Returns per litter.	61	\$226	\$244	\$196	\$198
Dairy returns per cow.	62	241	171	191	254
Horse and machinery cost per crop acre.	63	\$ 11.05	\$ 8.30	\$ 9.99	\$ 8.91
Labor cost per crop acre.	64	18.18	13.64	15.60	12.76
Land improvements cost per acre.	65	1.07	1.04	.72	1.00
Farm buildings cost per acre.	66	1.31	.86	1.30	.88
Taxes per acre.	67	.81	.61	.84	.76

(Concluded)

TABLE 11.—SUMMARY OF BUSINESS RECORDS FROM 2,767 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1944—*Concluded*

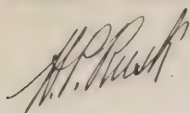
	Washing- ton	Effingham, Fayette, Cumber- land	Jefferson, Hamilton, Franklin, William- son	Jasper, Crawford, Clark	Clay, Richland, Wayne, Marion	Edwards	Gallatin, White, Wabash, Lawrence, Saline	Jackson, Perry, Pulaski, Alexander, Johnson, Pope, Hardin
1	\$18 353	\$17 496	\$17 910	\$27 726	\$16 283	\$17 842	\$23 953	\$14 867
2	10 057	8 110	8 741	13 883	7 945	8 930	12 822	6 864
3	470	638	794	738	776	619	623	477
4	2 035	2 063	1 782	2 985	1 678	1 534	2 426	1 840
5	225	218	219	193	224	225	213	348
6	1 242	1 561	1 581	2 328	1 623	1 308	1 853	1 617
7	313	493	670	1 365	432	819	879	505
8	51	119	81	41	176	103	24	36
9	189	276	199	251	200	247	193	192
10	1 825	2 100	2 032	3 382	1 540	2 351	2 868	1 778
11	1 946	1 918	1 811	2 560	1 689	1 706	2 052	1 210
12	\$ 6 112	\$ 5 992	\$ 5 102	\$ 8 531	\$ 4 381	\$ 5 488	\$ 6 214	\$ 4 184
13	392	811	832	1 182	629	743	899	515
14	1 960	1 580	376	620	563	249	534	587
15	717	1 303	1 825	3 769	1 145	2 453	2 104	1 124
16	37	109	58	49	133	77	31	31
17	681	875	512	834	566	737	489	517
18	366	341	448	433	382	366	442	409
19	1 756	818	878	1 438	787	732	1 504	853
20	166	123	128	171	140	112	169	102
21	37	32	45	35	36	19	42	46
22	\$ 2 010	\$ 2 824	\$ 2 954	\$ 3 424	\$ 2 309	\$ 2 373	\$ 2 576	\$ 1 949
23	254	277	422	311	333	352	246	182
24	154	194	184	256	143	136	196	177
25	31	667	516	660	437	404	261	208
26	940	981	1 128	1 300	808	803	1 091	734
27	316	357	397	457	262	353	402	358
28	173	219	174	288	196	210	270	186
29	142	129	133	152	130	115	110	104
30	\$ 4 102	\$ 3 168	\$ 2 148	\$ 5 107	\$ 2 072	\$ 3 115	\$ 3 638	\$ 2 235
31	1 776	1 498	1 279	1 518	1 289	1 293	1 338	1 124
32	\$ 2 326	\$ 1 670	\$ 869	\$ 3 589	\$ 783	\$ 1 822	\$ 2 300	\$ 1 111
33	12.7	9.5	4.9	12.9	4.8	10.2	9.6	7.5
34	\$ 2 430	\$ 1 789	\$ 848	\$ 3 218	\$ 879	\$ 1 854	\$ 1 965	\$ 1 145
35	3 434	2 712	2 209	4 874	1 700	3 346	3 341	1 634
36	302	115	-509	-200	-10	-597	-145	192
37	28	40	31	35	56	42	33	35
38	232	253	311	314	279	226	263	257
39	\$ 26.32	\$ 23.72	\$ 16.42	\$ 27.16	\$ 15.72	\$ 24.23	\$ 23.65	\$ 16.31
40	16.30	17.11	13.62	15.73	12.91	16.19	14.90	11.98
41	\$ 10.02	\$ 6.61	\$ 2.80	\$ 11.43	\$ 2.81	\$ 8.04	\$ 8.75	\$ 4.33
42	\$ 43	\$ 32	\$ 28	\$ 44	\$ 29	\$ 39	\$ 49	\$ 27
43	47	35	30	47	30	42	52	32
44	8.76	8.17	5.73	9.50	6.02	6.77	9.23	7.17
45	79	69	58	88	58	79	91	58
46	84.2	77.5	86.0	84.4	85.6	84.6	85.2	70.7
47	14.9	22.4	17.3	36.0	18.2	26.3	31.4	22.4
48	13.7	8.3	5.3	5.6	7.8	5.2	3.7	4.2
49	32.8	7.9	19.2	8.1	9.8	19.1	17.8	11.8
50	7.0	18.8	2.2	13.1	10.8	6.1	7.9	4.0
51	2.6	6.9	8.5	6.2	7.8	6.8	8.4	8.8
52	29.0	35.7	47.5	31.0	45.6	36.5	30.8	48.8
53	23.3	27.5	25.6	35.2	15.0	30.7	31.2	32.2
54	24.5	27.3	17.6	20.7	19.5	26.7	17.6	19.2
55	22.6	19.9	18.4	18.1	18.6	20.2	19.2	17.8
56	20.0	27.5	18.0	23.3	15.3	28.8	20.3	25.6
57	15.0	15.8	12.1	16.8	13.8	15.1	13.9	13.2
58	\$ 10.93	\$ 13.50	\$ 9.33	\$ 16.53	\$ 9.22	\$ 14.66	\$ 13.13	\$ 8.07
59	160	144	136	131	129	137	128	149
60	6	8	8	19	5	11	11	6
61	\$207	\$224	\$208	\$215	\$215	\$252	\$215	\$220
62	187	205	120	144	134	124	132	138
63	\$ 6.71	\$ 8.02	\$ 7.96	\$ 7.07	\$ 6.11	\$ 7.27	\$ 7.30	\$ 8.67
64	12.50	12.75	10.51	9.52	9.57	11.92	9.99	13.91
65	1.09	1.10	1.36	.99	1.19	1.55	.94	.70
66	.66	.77	.59	.82	.51	.60	.75	.69
67	.63	.67	.44	.73	.59	.66	.87	.56



Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 8-45, 7800
Permit No. 1247

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1929.....	95	105	130	129	136	130	101	121	120	110
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	118	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	187	245	199
1943.....	103	123	166	127	251	243	191	233	330	239
1944 June...	104	125	166	133	275	230	173	262	335	235
July.....	104	124	166	133	252	199	150	262	327	230
Aug.....	104	123	168	133	261	185	139	263	330	232
Sept.....	104	123	166	133	244	196	147	264	329	231
Oct.....	104	123	170	133	262	295	222	268	330	232
Nov.....	104	124	169	134	267	314	234	271	327	232
Dec.....	105	126	170	134	264	270	201	276	332	232
1945 Jan.....	105	126	173	134	278	239	178	273	330	234
Feb.....	105	127	174	134	312	226	169	275	329	235
Mar.....	105	127	174	135	294	249	184	275	326	235
Apr.....	106	129	174	135	292	...	...	273	317	231
May.....	106 ¹¹	130	174	135	...	...	...	...	303	227
June.....	106 ¹¹	130	175	135	...	...	...	...	...	222

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS^{1,2}

Product	Calendar year average			July 1944	Current months		
	1935-39	1943	1944		May	June	July
Corn, bu.....	\$.66	\$.98	\$ 1.07	\$ 1.09	\$1.07	\$1.08	\$1.08
Oats, bu.....	.31	.66	.74	.74	.67	.67	.64
Wheat, bu.....	.86	1.43	1.54	1.47	1.58	1.59	1.54
Barley, bu.....	.62	1.00	1.16	1.13	1.07	1.10	1.05
Soybeans, bu.....	.90	1.68	1.91	1.88	2.10	2.10	2.10
Hogs, cwt.....	8.52	14.07	13.47	13.10	14.30	14.30	14.20
Beef cattle, cwt.....	7.88	13.46	13.34	13.40	14.00	14.10	13.70
Lambs, cwt.....	8.36	13.57	13.52	13.40	14.00	14.10	14.40
Milk cows, head.....	58.00	129.25	124.50	124.00	123.00	125.00	125.00
Veal calves, cwt.....	8.66	14.40	13.88	13.50	14.60	14.60	14.50
Sheep, cwt.....	3.58	6.58	5.67	5.20	7.10	7.00	7.10
Butterfat, lb.....	.27	.49	.49	.48	.48	.48	.48
Milk, cwt.....	1.68	2.97	3.02	2.95	2.85	2.80	2.85
Eggs, doz.....	.19	.36	.31	.30	.31	.32	.33
Chickens, lb.....	.15	.24	.24	.25	.25	.26	.28
Wool, lb.....	.25	.42	.42	.44	.40	.40	.43
Apples, bu.....	1.08	2.49	3.11	3.10	2.80	3.00	2.80
Hay, ton.....	9.39	15.11	17.65	14.50	19.30	18.30	17.00
Potatoes, bu.....	.91	1.92	1.83	1.95	2.30	2.55	2.55

¹⁻¹²For sources of data in tables see preceding page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

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CROP COSTS IN ILLINOIS IN 1944

For 25 years, a group of farmers in Champaign and Piatt counties in east-central Illinois has cooperated with the University by keeping records of the cost of producing farm crops. In 1944 the farmers included in this cost study had farms which were about 100 acres larger than those owned by the average farmer in the area, secured somewhat higher crop yields and had somewhat lower costs than did many of their neighbors. The 1944 cost data show a continuation of the rise in acre-costs that began after the low year of 1933.

Hourly costs of power and labor advancing. The increase in acre-costs of crops during the past ten years was the result, very largely, of the increase that took place in power and machinery expenses and wages for labor (Table 1). The hourly hired labor wage paid in 1944 was over two and one-half times the wage paid ten years earlier. The number of work horses per farm decreased from five in 1935 to less than two in 1944, and the two-plow tractors on the farms were used 104 hours more in 1944 than in 1935. An increase in the investment in power-drawn machinery grew with the more general use of combines, corn pickers, and pickup balers which accompanied the more general use of tractor power.

The 1944 growing season in east-central Illinois was characterized by heavy spring rains and a summer drought. Farmers were unable to accomplish much field work in April and early May. Rains throughout the area during the latter part of August brought needed relief from the summer drought. The first severe frost in the fall did not occur until the latter part of November, allowing the late-planted corn and soybean crops to mature.

The reader is warned that some of the bushel and ton costs of crops

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

TABLE 1.—THE EFFECT OF INCREASING FARM WAGES AND POWER AND MACHINERY COSTS ON THE ACRE-COST

Year	Cost per hour			Power-drawn machinery cost per acre		Operating costs per acre	
	Hired man labor	Horse labor	Two-plow tractor	Corn	Soybeans	Corn	Soybeans
1935.....	\$. 20	\$. 11	\$. 45	\$.79	\$1. 69	\$10. 63	\$ 8. 18
1936.....	. 21	. 15	. 46	. 85	1. 91	10. 35	8. 30
1937.....	. 23	. 16	. 46	1. 16	1. 93	10. 94	10. 74
1938.....	. 24	. 15	. 45	1. 53	1. 65	10. 59	8. 44
1939.....	. 25	. 16	. 50	1. 76	1. 89	11. 25	8. 57
1940.....	. 29	. 20	. 49	1. 83	1. 80	12. 09	9. 28
1941.....	. 32	. 17	. 53	1. 82	1. 85	12. 76	10. 38
1942.....	. 38	. 37	. 48	1. 77	1. 96	14. 22	12. 15
1943.....	. 47	. 49	. 50	2. 03	1. 82	13. 78	12. 10
1944.....	. 55	. 83	. 50	1. 78	2. 10	14. 75	13. 50

shown here are much below a fair market price. This is true because (1) good rotations of crops requiring the inclusion of low-profit grains and legumes in the cropping system are necessary to maintain the productivity of the soil, and (2) no attempt was made to charge the crops for the fertility they removed from the soil, for no satisfactory method of evaluating such removal had been worked out. Corn and soybeans are the most profitable staple grain crops in the central corn belt, but the farmer must reckon the returns from the rotation as a whole, and the more profitable crops must carry the less profitable ones necessary to a good rotation. Corn and soybeans must help carry the small grains and the legume crops grown for soil improvement.

Cost of producing corn in Champaign and Piatt counties in 1944. Operating expenses for producing an acre of corn were \$14.75 after credit was given for stalk pasture. Operating expenses include all production costs except the interest on the investment in land. When land charges were added, the net cost of producing an acre of corn was \$21.54. In 1944, on farms included in this study, the yield per acre was 56.4 bushels, and the average cost per bushel was 38.2 cents (Table 2). These figures may be compared with those for 1932-36 when the yield per acre was 42 bushels and the average cost per bushel was 38.7 cents.

Cost of producing oats. In 1944 the oat crop was combined on 85 percent of the oatland on farms in this study. The operating expenses for producing an acre of combined oats was \$8.39. When land charges were added the net cost of producing an acre of combined oats was \$15.51. The yield of the combined oats per acre was 31.4 bushels, and the average cost per bushel was 49.4 cents.

There were not enough farms on which the oat crop was cut with a binder and threshed to warrant computing average costs.

TABLE 2.—THE COST OF PRODUCING CROPS IN 1944 IN CHAMPAIGN AND PIATT COUNTIES, ILLINOIS

Item	Corn	Combined oats	Soybeans	Alfalfa hay	Clover hay	Soybean hay
Acres in crop, per farm.....	93.3	31.2	94.2	5.9	16.2	4.2
Yield per acre, bushels or ton.....	56.4	31.4	24.8	2.5	1.5	1.5
Labor and power per acre						
Man hours.....	6.35	2.93	3.76	12.59	8.32	12.66
Horse hours.....	.93	.15	.01	.79	.62	2.00
Tractor hours.....	4.70	2.11	2.79	5.53	3.85	4.69
Truck miles.....	.24	.58	1.13	.33	.04	.56
Cost items per acre						
Growing costs						
Man labor.....	\$ 2.18	\$.62	\$ 1.47	.....	.....	\$ 1.33
Horse labor.....	.07	.04	.....	.....	.....	.....
Tractor use.....	1.89	.61	1.42	.....	.....	1.33
Machinery.....	.90	.52	.78	.....	.....	.67
Seed.....	1.22	2.84	3.81	\$ 1.73	\$ 1.78	3.70
Manure and fertilizer.....	2.23	1.35	1.00	.68	.70	1.22
General overhead.....	1.94	.85	1.39	2.80	2.23	3.45
Total growing cost.....	\$10.43	\$ 6.83	\$ 9.87	\$ 5.21	\$ 4.71	\$11.70
Harvesting costs						
Man labor.....	\$ 1.37	\$ 1.00	\$.73	\$ 6.90	\$ 5.70	\$ 5.96
Horse labor.....	.37	.06	.....	.55	.46	1.65
Tractor use.....	.89	.59	.37	2.74	3.24	1.59
Picker and pickup baler ^a.....	.87	.....	.....	2.59	2.69	.....
Combine.....	.....	1.33	1.32	.....	1.63	.....
Machinery and truck use ^b.....	.....	.03	.10	2.53	1.44	2.48
Total harvesting cost.....	\$ 3.50	\$ 3.01	\$ 2.52	\$15.31	\$15.16	\$11.68
Cost of growing and harvesting....	\$13.93	\$ 9.84	\$12.39	\$20.52	\$19.87	\$23.38
Taxes.....	1.43	1.93	1.43	1.42	1.53	1.48
Interest at 5% on land value.....	6.79	6.37	6.83	6.65	6.96	6.71
Total cost.....	\$22.15	\$18.14	\$20.65	\$28.59	\$28.36	\$31.57
Income per acre						
Grain or hay.....	\$56.42	\$22.28	\$50.76	\$58.24	\$34.78	\$29.37
Pasture.....	.61	1.90	.32	.92	.05	.....
Straw.....	.....	.73	.....	.....	8.17 ^c	.....
Total income.....	\$57.03	\$24.91	\$51.08	\$59.16	\$43.00	\$29.37
Net cost per bushel or ton.....	\$.382	\$.494	\$.818	\$11.20	\$13.09	\$21.45

^a The picker was used in harvesting corn and the pickup baler in harvesting alfalfa and clover hay.

^b This item includes machinery for alfalfa, clover, and soybean hay and truck use only for the other crops.

^c Clover seed only.

Soybean costs. The cost of growing and combining soybeans has shown a tendency to rise since 1932, and yet the operating expenses an acre of soybeans in 1944 was \$1.00 less than on these farms in 1930.

In 1944 on these farms 40 percent of the soybean crop was planted in rows. More time and power were required where beans were cultivated, but the 3¾ man hours, practically no horse hours, and 2½ tractor hours for an acre of all the beans on these farms in 1944 are very low when compared with 12 man hours, 27 horse hours and 1½ tractor hours used to grow and harvest an acre of soybeans on the farms in this group that raised soybeans in 1924. Seventy-one percent of the farmers in the cost study owned their own combines. The combine cost for an acre of soybeans shown in Table 2 as \$1.32 is figured as follows: The average comes from two figures, namely, (1) the estimated share of the custom rate paid

that went for the use of the combine without the accompanying men and power where soybeans were custom combined, and (2) the cost of operating combines on those farms where the operator's own combine was used, again omitting men and power costs.

The operating expenses for producing an acre of grain beans was \$13.50. When land charges were added, the net cost of producing an acre of grain beans was \$20.33. The yield per acre was 24.8 bushels, and the average cost per bushel was 81.8 cents.

Cost of producing alfalfa and clover hay. One can see by the figures on alfalfa and clover hay in Table 2 that the acre-yields were not very good in this part of Illinois in 1944, and yet hay yields on the cost farms that year were above their ten-year average. On five of the farms that produced alfalfa the hay cost less than \$10.00 a ton; the acre-yield of alfalfa on these farms was 2.9 tons. On the farms where yield was less than two tons an acre the cost was above \$15.00 a ton. The production of clover seed, the value of which seed was deducted from gross cost to obtain net cost, had a decided effect on the cost of clover hay.

Cost of producing soybean hay. Forty-five percent of the farmers cut more than two or three mower-widths around their soybean grain fields and used these cuttings for hay. This is a larger portion than had raised soybeans for hay in several years. The wet spring kept a large portion of the farmers in the cost study out of the field when they would normally be preparing the ground for corn and soybeans. As soon as spring work could be done corn was planted first with the result some soybeans were sown so late they could not make a grain crop. In 1944 the operating expenses for growing and harvesting an acre of soybean hay were \$24.86; when land charges were added the cost of producing an acre of soybean hay was \$31.57. The yield per acre was 1.47 tons and the average cost per ton was \$21.45.

Wide variation in costs from farm to farm. The cost figures in Table 2 are averages of costs on 24 Champaign and Piatt county farms but there was a difference of \$10.27 an acre of corn between the farm with the low acre-cost and farm with the high acre-cost. Variations in cost of as great a proportion of the average acre-cost occurred in the other crops shown in Table 2. Occasionally the differences in crop costs from farm to farm in the same locality are due to unavoidable causes, such as storms or insect damage; but in most cases they are the result of differences in managerial ability of the farm operators and in the productivity of the land.

R. H. WILCOX

PROFITS AND LOSSES IN FEEDING CATTLE

The decision to feed cattle depends on how much they will add to the earnings of the farm as a whole. This involves a complex of factors and interrelationships in addition to direct profit considerations. Feeder cattle utilize labor available in slack seasons; they provide a market for hay and pasture crops otherwise difficult to market; and they contribute to higher farm earnings through increased crop yields resulting from fertility conserved in the manure returned. However, cattle feeding becomes rather unpopular when direct profits disappear, and particularly so for the feeder who incurs high cash outlays through purchased feeds, hired labor, and borrowed capital.

Three primary sources of direct profits or loss in feeding cattle are: (1) The margin or spread between the price paid for feeders and the price received for fat cattle; (2) the cost of the gain relative to the selling price; and (3) the death loss. Price levels and the relationship of cattle prices to feed prices play major roles in the financial aspects of cattle feeding. These are largely beyond the control of the individual cattle feeder, but it is possible for him to modify his feeding program since not all classes of cattle are affected equally by a given price situation. Differences in age, weight, and quality of feeder cattle cause varying relation-

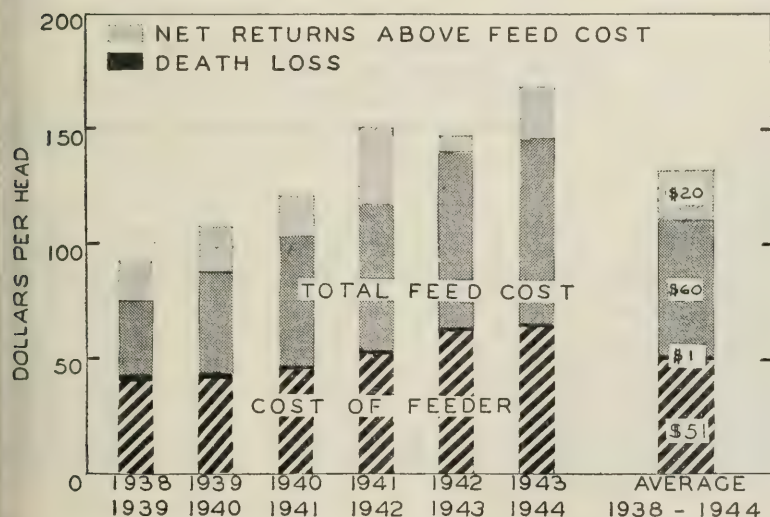


FIG. 1.—NET MARKET VALUE OF LONG-FED GOOD TO CHOICE STEER CALVES DIVIDED AMONG COSTS AND NET RETURNS ABOVE FEED COSTS, 1938-44

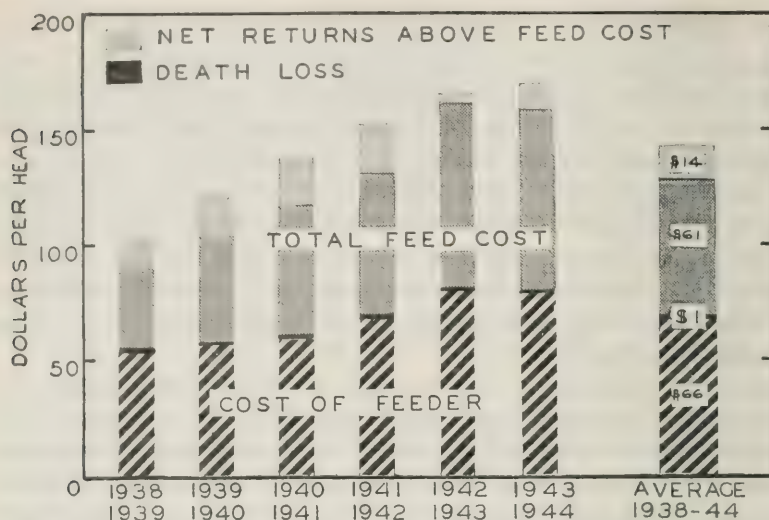


FIG. 2.—NET MARKET VALUE OF LONG-FED GOOD TO CHOICE YEARLING STEERS DIVIDED AMONG COSTS AND NET RETURNS ABOVE FEED COSTS, 1938-44

ships between prices and feed costs. Some of these differences are shown in Figures 1 to 4 and Tables 1 to 4.¹

TABLE 1.—COSTS AND RETURNS FROM LONG-FED GOOD TO CHOICE STEER CALVES, 1938-44

	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	Average 1938-44
Number of droves ^a	31	28	13	12	13	8	18
Cost per head bought.....	\$39.15	\$ 42.33	\$ 46.14	\$ 50.66	\$ 62.19	\$ 63.11	\$ 50.60
Death loss per head sold.....	.91	1.35	1.10	1.28	1.28	.27	1.03
Feed cost per head sold.....	34.46	43.98	55.94	66.48	76.39	83.24	60.08
Total cost per head sold.....	74.52	87.66	103.18	118.42	139.86	146.62	111.71
Amount received per head sold....	\$91.66	\$108.57	\$121.51	\$150.52	\$148.28	\$169.20	\$131.63
Net returns per head sold.....	17.14	20.91	18.33	32.10	8.42	22.58	19.92
Returns per \$1.00 feed fed.....	1.50	1.48	1.33	1.48	1.11	1.27	1.33
Average weight when sold.....	935	964	1,034	1,000	995	1,000	988
Average weight when bought.....	424	409	430	400	433	450	425
Average net gain per head.....	511	555	604	600	562	550	563
Average price received.....	\$ 9.80	\$ 11.26	\$ 11.75	\$ 15.05	\$ 14.90	\$ 16.92	\$ 13.32
Average price paid.....	9.23	10.35	10.73	12.66	14.36	14.03	11.90
Price spread.....	.57	.91	1.02	2.39	.54	2.89	1.42
Feed cost per 100 pound gain sold..	6.74	7.92	9.26	11.08	13.59	15.13	10.67

^a The droves averaged 43 head per drove.

¹ These charts and all subsequent tables and data are based on records of droves of cattle fed by cooperators in the Farm Bureau Farm Management Service. Detailed information on the individual droves of cattle can be secured from the six Annual Reports of Feeder Cattle prepared from these records and published by the Department of Agricultural Economics, College of Agriculture, University of Illinois. Prices paid for the cattle purchased represent the net cost laid down in the feed lot for weights at the place of purchase. Prices received are net for the selling

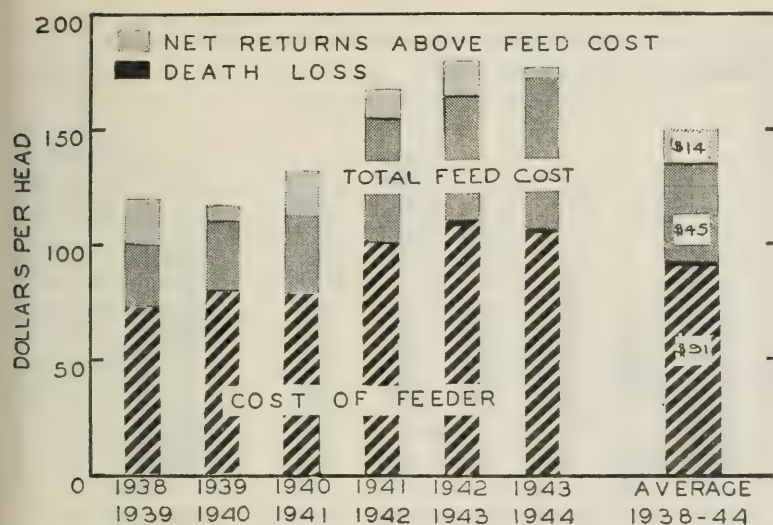


FIG. 3.—NET MARKET VALUE OF SHORT-FED GOOD TO CHOICE HEAVY STEERS DIVIDED AMONG COSTS AND NET RETURNS ABOVE FEED COSTS, 1938-44

The six-year average cost per feeder steer of good to choice steer calves was \$50.60 as compared with \$91.24 for good to choice heavy steers with a little more than twice the weight. Feed costs, on the other hand,

TABLE 2.—COSTS AND RETURNS FROM LONG-FED GOOD TO CHOICE YEARLING STEERS, 1938-44

Item	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	Average 1938-44
Number of droves ^a	25	17	17	5	8	14	14
Cost per head bought.....	\$ 52.50	\$ 56.86	\$ 60.13	\$ 67.86	\$ 79.24	\$ 79.60	\$ 66.03
Death loss per head sold.....	.72	.20	.65	1.21	.94	.06	.63
Feed cost per head sold.....	37.82	47.17	57.52	62.25	80.70	78.03	60.58
Total cost per head sold.....	91.04	104.23	118.30	131.32	160.88	157.69	127.24
Amount received per head sold.....	\$104.00	\$121.88	\$136.19	\$151.81	\$165.62	\$170.44	\$141.61
Net returns per head sold.....	12.96	17.65	17.89	20.49	4.74	12.75	14.37
Returns per \$1.00 feed fed.....	1.34	1.37	1.31	1.33	1.06	1.16	1.24
Average weight when sold.....	1,079	1,106	1,178	1,044	1,086	1,051	1,091
Average weight when bought.....	596	596	597	572	590	637	598
Average net gain per head.....	483	510	581	472	496	414	493
Average price received.....	\$ 9.64	\$ 11.02	\$ 11.56	\$ 14.54	\$ 15.25	\$ 16.22	\$ 12.98
Average price paid.....	8.81	9.54	10.07	11.86	13.43	12.50	11.04
Price spread.....	.83	1.48	1.49	2.68	1.82	3.72	1.94
Feed cost per 100 pounds gain sold	7.83	9.25	9.90	13.19	16.27	18.85	12.29

^a The droves averaged 49 head per drove.

weight at the market after deducting marketing charges. Feed cost was determined by applying monthly farm prices to the quantities of farm-grown feeds fed. Purchased feed was charged at cost, and pasture was valued at a fair average rate. An allowance was made for feed salvaged by hogs, and the cattle were charged only with feed they actually used. The grade of the cattle fed was accepted as reported by the farmer and supported by the prices paid and received.

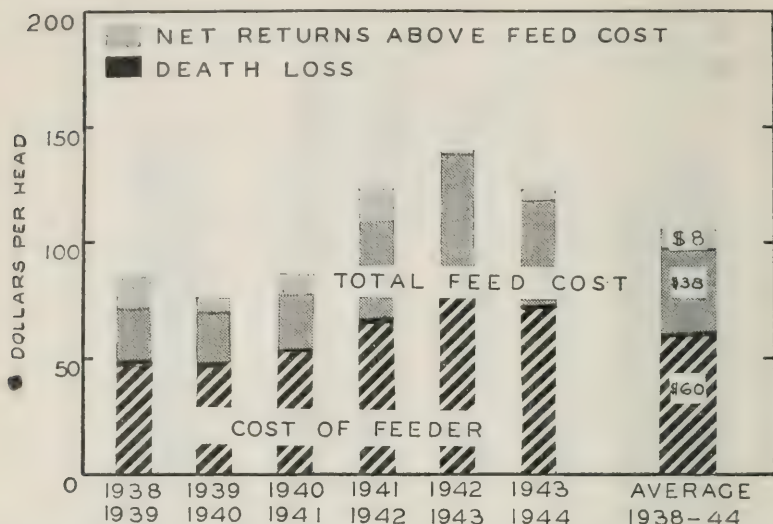


FIG. 4.—NET MARKET VALUE OF SHORT-FED COMMON TO MEDIUM YEARLING STEERS DIVIDED AMONG COSTS AND NET RETURNS ABOVE FEED COSTS, 1938-44

amounted to \$60.08 for 563 pounds net gain per head on the steer calves as compared with \$44.71 for 323 pounds net gain on the heavy steers. The initial investment and the relationship between the price received and the price paid are most important in connection with the heavy steers. Since feed cost is the largest item for the steer calves the most important relationship is between the selling price and the feed cost per 100 pounds gain sold.

TABLE 3.—COSTS AND RETURNS FROM SHORT-FED GOOD TO CHOICE HEAVY STEERS, 1938-44

Item	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	Average 1938-44
Number of droves ^a	11	9	6	5	18	12	10
Cost per head bought.....	\$ 74.05	\$ 80.08	\$ 79.25	\$ 99.87	\$108.68	\$105.43	\$ 91.24
Death loss per head sold.....	.....	.....	.....	.....	.92	.45	.19
Feed cost per head sold.....	25.83	30.43	32.44	56.44	55.21	67.83	44.71
Total cost per head sold.....	99.88	110.51	111.69	156.31	164.81	173.71	136.14
Amount received per head sold.....	\$121.69	\$116.74	\$132.59	\$169.09	\$180.71	\$178.15	\$149.81
Net returns per head sold.....	21.81	6.23	20.90	12.78	15.90	4.44	13.67
Returns per \$1.00 feed fed.....	1.84	1.20	1.64	1.23	1.29	1.07	1.31
Average weight when sold.....	1,179	1,238	1,202	1,273	1,176	1,126	1,199
Average weight when bought.....	895	927	841	915	867	814	876
Average net gain per head.....	284	311	361	358	309	312	323
Average price received.....	\$ 10.32	\$ 9.43	\$ 11.03	\$ 13.28	\$ 15.37	\$ 15.82	\$ 12.49
Average price paid.....	8.27	8.64	9.42	10.91	12.54	12.95	10.41
Price spread.....	2.05	.79	1.61	2.37	2.83	2.87	2.08
Feed cost per 100 pounds gain sold	9.10	9.78	8.99	15.77	17.87	21.74	13.84

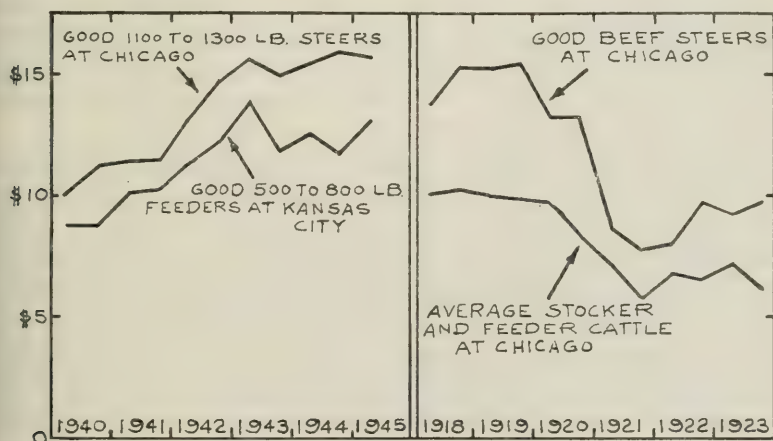
^a The droves averaged 38 head per drove.

TABLE 4.—COSTS AND RETURNS FROM SHORT-FED COMMON TO MEDIUM YEARLING STEERS, 1938-44

Item	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	Average 1938-44
Number of droves ^a	7	5	10	4	4	11	7
Cost per head bought.....	\$46.16	\$46.59	\$52.46	\$ 65.34	\$ 77.26	\$ 71.15	\$ 59.82
Death loss per head sold.....	1.38	.13	.43	.68	.79	.54	.69
Feed cost per head sold.....	23.16	23.29	25.96	43.48	62.57	47.53	37.66
Total cost per head sold.....	70.70	70.01	78.85	109.50	140.62	119.22	98.17
Amount received per head sold....	\$85.49	\$75.50	\$86.08	\$124.51	\$141.40	\$123.06	\$106.02
Net returns per head sold.....	14.79	5.49	7.23	15.01	.78	3.84	7.85
Returns per \$1.00 feed fed.....	1.64	1.24	1.28	1.35	1.01	1.08	1.21
Average weight when sold.....	950	926	943	1,034	1,007	913	962
Average weight when bought.....	641	631	686	682	677	659	663
Average net gain per head.....	309	295	257	352	330	254	299
Average price received.....	\$ 9.00	\$ 8.15	\$ 9.13	\$ 12.04	\$ 14.04	\$ 13.48	\$ 11.02
Average price paid.....	7.20	7.38	7.65	9.58	11.41	10.80	9.02
Price spread.....	1.80	.77	1.48	2.46	2.63	2.68	2.00
Feed cost per 100 pounds gain sold	7.50	7.89	10.10	12.35	18.96	18.71	12.60

^a The droves averaged 44 head per drove.

Both cattle numbers and prices increased during the six years, 1938-44, covered by these charts. At the present time (September, 1945) cattle numbers are high, and we face a possible decline in demand. A similar situation existed at the close of World War I. Cattle numbers were at the peak of a cycle in 1918-19, and the subsequent decline in demand in late 1920 and 1921 brought sharply lower cattle prices. The movement of cattle prices in the past six years and in the six years following the

FIG. 5.—CATTLE PRICES DURING WORLD WAR II AND FOLLOWING WORLD WAR I, PERIODS 1940-45 AND 1918-23^{a, b}

^a Sources of data: 1918-23 prices were taken from the Chicago Drovers Journal Yearbook; 1940-45 prices are from the U.S.D.A. publication, "Livestock, Meats, and Wool Market Review and Statistics."

^b The plotted points are six months averages.

end of World War I are compared in Figure 5. Whether the experience of 1919-21 is to be repeated depends upon how successful we shall be in maintaining the necessary level of employment and consumer purchasing power to prevent such a drastic decline in prices.

With the probability of some downward adjustment of cattle prices within the next few years it is important that the cattle feeder understand the influence of lower prices upon the price spread and the feeding margin, and the relative importance of each of these factors in connection with the different classes of cattle. Figures 1 to 4 show how the net market returns per head of fat cattle compared with the feed cost, the cost of the feeder and the death loss. It is interesting to follow the timing involved in this pattern over the past six years of rising prices. Farmers paid successively higher prices for the feeder stock they bought and they fed increasingly higher valued feed to this stock. No one knew that the selling price of the fat cattle would advance enough to permit a satisfactory margin of profit over these increased costs. Price spreads actually increased during this period but the increases were more than absorbed by the rising feed cost.

Now let us assume that we are going down this ladder instead of up. The cost of the feeder comes at a higher point on the ladder than the selling price at the close of the feeding period. Feed costs likewise are incurred at a higher point than prevails at the time of sale. There may be some adjustment in price of both feeder stock and feed in anticipation of a lower level of fat cattle prices, but this adjustment is seldom adequate. Also the movement of prices is in the direction of narrower price spreads, which means that gains must be put on at a lower cost to yield the same level of profit. This raises the question of the relative importance of these two factors with different classes of cattle.

The price-spread is simply the amount by which the selling price of the fat cattle exceeds the price paid for them as feeders. For example the six-year average price paid for the good to choice heavy steers used in this analysis was \$10.41 a hundred pounds and the average price received was \$12.49 or \$2.08 more than was paid. The original weight of 876 pounds purchased was resold as part of the fat steer for \$2.08 a hundred more than it cost, thus resulting in a profit of \$18.22. This increase in price reflects both the increase in slaughter value from the finish put on by the feeding operation and the upward trend in the market during the feeding period.

The cost of the finish put on is usually expressed in terms of feed cost per 100 pounds gain in weight. In the case of the good to choice heavy steers, the average net gain per head was 323 pounds put on at a feed cost of \$13.84 for each hundred pounds gain. This gain in weight along

TABLE 5.—FACTORS CONTRIBUTING TO RETURNS FROM DIFFERENT CLASSES OF CATTLE, SIX-YEAR AVERAGES, 1938-44

Item	Long-fed		Short-fed	
	Gd.-Ch. Steer Calves	Gd.-Ch. Yrlg. Steers	Gd.-Ch. Heavy Steers	Com.-Med. Yrlg. Strs.
Average number of droves per year.....	18	14	10	7
Average number of head per drove.....	43	49	38	44
Average weight when bought.....	425	598	876	663
Average net gain per head.....	563	493	323	299
Average weight when sold.....	988	1,091	1,199	962
Average price received.....	\$13.32	\$12.98	\$12.49	\$11.02
Average price paid.....	11.90	11.04	10.41	9.02
Price spread.....	1.42	1.94	2.08	2.00
Average price received.....	\$13.32	\$12.98	\$12.49	\$11.02
Feed cost per 100 pounds gain sold.....	10.67	12.29	13.84	12.60
Margin on feeding operations.....	2.65	.69	-1.35	-1.58
Gain per head on price spread.....	\$ 6.03	\$11.60	\$18.22	\$13.26
(spread times weight bought)				
Gain or loss on feeding.....	14.92	3.40	-4.36	-4.72
(feeding margin times net gain in weight)				
Death loss per head sold.....	1.03	.63	.19	.69
Net returns above feed per head sold*.....	19.92	14.37	13.67	7.85
Returns per \$1.00 of feed fed.....	1.33	1.24	1.31	1.21
Number of head required to realize a total return of \$500 above feed.....	25.1	34.8	36.6	63.7
Value of feed required for this number.....	\$1,508	\$2,108	\$1,636	\$2,399
Average length of feeding period (days).....	339	312	220	194
Number required to market \$1500 worth of feed	25.0	24.8	33.5	39.8

* This is a return above feed costs from which labor, interest, equipment, and other costs must be paid. It does not include any value for manure.

with the original 876 pounds sold for \$12.49 a hundred, the average price of the fat steers, or an actual loss of \$1.35 for each 100 pounds of gain put on. The average loss on the feeding operation thus amounted to \$4.36 for each head sold.

Having charged all feed costs to the gain on the animals that lived and were sold on the market there remains only one item to be accounted for, the purchase cost of feeders that died. This loss in the case of the heavy steers amounted to 19 cents per head sold. In the final reckoning we have a gain of \$18.22 on the price spread offset in part by a feeding loss of \$4.36 and a death loss of \$.19 per head, or a profit or return above feed cost of \$13.67 for each head sold. No attempt will be made to carry the analysis beyond this point except to point out that this return of \$13.67 plus any credit for manure produced must pay for the equipment, labor, interest, and other costs involved in the feeder cattle enterprise before a net profit figure is reached.

The foregoing analysis is carried through in Table 5 for each of the four classes of cattle used in this study. In sharp contrast with the heavy steers are the long-fed good to choice steer calves. While this class of cattle enjoyed a price spread of only \$1.42 as compared with \$2.08 on the

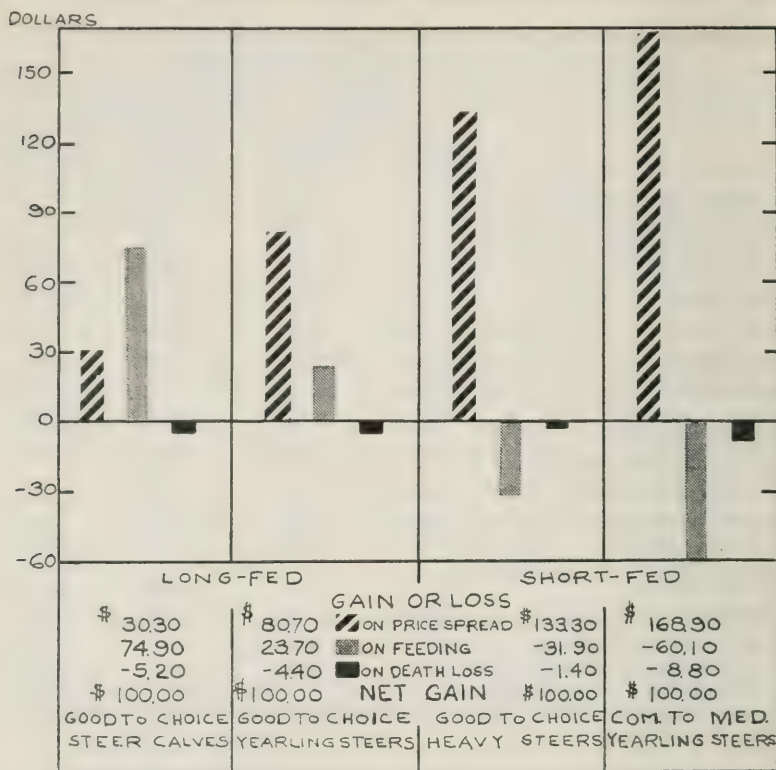


FIG. 6.—THE CONTRIBUTION OF PRICE SPREADS, FEEDING MARGINS, AND DEATH LOSSES TOWARD THE PRODUCTION OF \$100 RETURNS ABOVE FEED COSTS FROM DIFFERENT CLASSES OF CATTLE, 1938-44

heavy steers, they had the advantage of a feed cost of \$2.65 per 100 pounds less than the selling price. Not only are these differences significant in themselves, but they become doubly important when they are related to the initial weights and the average gains to which they apply. For example, the larger price spread applied to an average weight of 876 pounds for the heavy cattle as compared to the initial weight of 425 pounds for the steer calves. The gain on price spread thus amounted to only \$6.03 for the steer calves but the margin of \$2.65 per 100 pounds on the 563 pounds gain resulted in a profit of \$14.92 on the feeding operations. These relationships arise out of the differences in the efficiency in the use of feed by cattle of different ages and weights. The growth put on by the calves requires less feed than the fat added to the carcasses of the heavy cattle.

The relative contribution of the three profit factors to each \$100 of net return from classes of cattle is shown in Figure 6. Since the profits

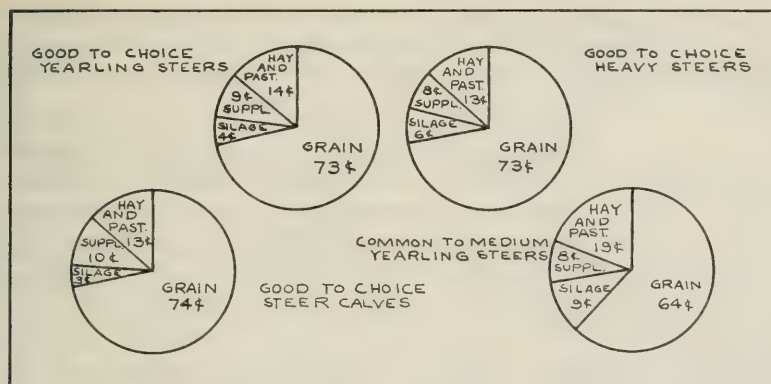


FIG. 7.—DISTRIBUTION OF FEED COSTS BY TYPES OF FEED AND CLASSES OF CATTLE, SIX-YEAR AVERAGES, 1938-44

on the heavy cattle depend on the price spread it is obvious that profits on heavier cattle will be the first to disappear in a period of falling cattle prices when the lag between purchase and sale reduces or wipes out price spreads. The individual cattle feeders who can secure gains at lower than average feed costs will remain on the profit side of the ledger longer than the others. This is true for any class of cattle. On the average the steer calves are in the most favored position in periods of shrinking price spreads. The relatively large intake of feed and the larger total gain on this class of cattle extends the farmer's range of control on costs and gives a positive advantage to the efficient feeder. For example, an advantage of \$1 in feed costs per 100 pounds of gain would mean an average saving of \$5.63 per head for the steer calves, but only \$3.23 per head for the heavy steers.

The results from the short-fed common to medium yearling steers in this analysis warrant some comment. These figures refer to feeding operations under farm conditions. The relatively large price spread and the high feed cost on the common to medium cattle suggest that these cattle were not handled too well for their grade. It is possible that they were fed too much grain and were finished too well for their grade at the expense of unprofitable feeding costs. Another factor that may operate to the apparent disadvantage of the common to medium cattle in this study is the practice of assigning average prices to all feeds fed. Insofar as these cattle were fed low quality roughages, particularly pastures, which would have had little value otherwise, the returns as calculated here would not reflect the real contribution of this class of cattle to the net farm income. It is characteristic, however, for low quality cattle to make less efficient use of

TABLE 6.—QUANTITIES OF DIFFERENT TYPES OF FEED MARKETED THROUGH DIFFERENT CLASSES OF CATTLE, SIX-YEAR AVERAGES, 1938-44

Kind of feed	Class of cattle							
	Good to choice steer calves		Good to choice yearling steers		Good to choice heavy steers		Common to medium yearling steers	
	Per head	Per 100 lbs. net gain	Per head	Per 100 lbs. net gain	Per head	Per 100 lbs. net gain	Per head	Per 100 lbs. net gain
Corn, bu.....	54.5	9.6	56.2	11.4	44.3	13.7	31.7	10.6
Oats, bu.....	11.3	2.0	8.9	1.8	3.2	1.0	4.5	1.5
Other grain, bu.....	.3	.1	....	....	.3	.1	.3	.1
Supplement, lbs.....	264	46.9	237	48.0	172	53.1	154	51.6
Silage, lbs.....	754	134	976	198	1037	321	1277	427
Hay, lbs.....	1032	201	1129	229	795	246	963	322
Pasture, days.....	36.6	6.5	41.9	8.5	28.4	8.8	37.7	12.6
Av. net gain per head, lbs.	563		493		323		299	
Number of head required to market 40 acres of hay and pasture.....	70		62		90		70	

feed than the higher grade of feeders. In a period of liquidation of cattle numbers it is likely that common to medium fed cattle will face increased competition from range fat cattle selling for slaughter.

Figure 7 and Table 6 compare the amounts and types of feed utilized by the four classes of cattle. It is significant that the steer calves provided a market for larger quantities of hay and pasture than did the older, heavier cattle. Of course, the longer feeding period on the calves makes possible a larger intake of feed, and the roughages which can be profitably marketed through feeder calves must be of good quality. The comparison, however, is useful in planning a livestock program for the individual farm.

In conclusion, these findings suggest three points of special importance in determining profits from feeding cattle in the next few years.

1. The "safest" class of cattle is likely to be the younger, lighter cattle. In a situation in which price spreads are likely to become low or disappear the cattle with the lowest feed cost are likely to prove most profitable. The heavier the cattle that are bought the more profits will depend upon an adequate price spread.

2. Good to choice cattle have certain advantages with respect to efficiency and lower costs of gains. They are also less likely to face the competition of stock being liquidated in periods of falling prices.

3. Economy of gains, regardless of the class of cattle, is the individual feeder's best opportunity to assure himself of a profit from his cattle feeding enterprise.

F. J. REISS

RETURNS FROM SOUTHERN ILLINOIS ORCHARD FARMS, 1944

Production of apples and peaches is an important enterprise on many farms in southern Illinois. The following is a summary of the 1944 returns from 13 orchard farms for which farm management records were analyzed in the extension project in farm accounts.

1. Orchard returns were particularly high in 1944. Although smaller in acreage than the average of other accounting farms in the same areas, the small-orchard farms had net earnings approximately twice as high as the average of other accounting farms. Net earnings on the large-orchard farms were roughly six times as high as the average of other accounting farms in the areas.

2. Other than fruit sales the 1944 incomes of orchard farms were largely from livestock and livestock products.

Income from livestock averaged practically the same on the orchard farms as on other accounting farms in the areas. This indicates that orchard farmers, with the acreages of orchard represented in this study, carry on about the same size of livestock business as do farmers in the same areas without orchards, but substitute fruit for grain sales.

3. In 1944 dairying was by far the most important livestock enterprise on large-orchard farms, with general livestock farming on the small-orchard farms. Although the number of records analyzed is small, this difference is of enough significance to raise certain questions. Although the feed situation suggests more emphasis on roughage-consuming animals on farms with larger orchards, the labor situation suggests beef rather than dairy herds. This is a matter for further study with a more adequate sample of farms.

Organization of farms. For comparison, southern Illinois orchard farms may be divided into three groups according to the degree of specialization in orcharding. (1) General farms on which the orchard is one of a number of important enterprises are represented by the seven farms with less than 30 acres of orchard (Tables 1 and 2): they averaged 19.4 acres in orchard, and had 46 percent of their 1944 income from fruit. (2) More highly specialized farms, but with considerable income in addition to fruit sales, are represented by the six farms with more than 30 acres in orchards: they averaged 64.5 acres of orchard, and 81 percent of their 1944 incomes from fruit. (3) Large scale, highly specialized fruit farms are not represented by the accounting farms.

The six large-orchard and the seven small-orchard farms had about the same total acreage, although the former had a considerably larger acreage of tillable land (Table 1). The chief difference in the use of land was in the acreage of orchard. The small-orchard farms grew consider-

TABLE 1.—ORGANIZATION OF 13 SOUTHERN ILLINOIS ORCHARD FARMS, 1944

	Average of 6 farms with over 30 A. in orchard	Average of 7 farms with less than 30 A. in orchard
Acres in farm.....	221	213
Acres tillable.....	184	155
Acres in crops, including orchard.....	130	99
Acres in orchard.....	64.5	19.4
Percent of tillable land in:		
Orchard.....	35.1	12.5
Corn.....	10.8	17.5
Oats.....	1.5	6.7
Wheat.....	5.5	9.8
Soybeans.....	.3	3.9
Other crops and idle.....	11.4	6.3
Legume hay and pasture.....	16.0	21.5
Non-legume hay and pasture.....	19.4	21.8
Number of cows milked.....	8	4
Number of litters of pigs farrowed.....	2	8
Number of hens.....	101	153

ably larger acreages of grain crops. Hay and pasture occupied a larger proportion of the tillable land on the small-orchard farms, but acreages of hay and pasture were practically the same on the two groups.

Except for dairy cattle, all livestock enterprises were on a larger scale on the small-orchard farms (Tables 1 and 2). In 1944 dairy sales were

TABLE 2.—CASH INCOME AND CASH EXPENSES, 13 SOUTHERN ILLINOIS ORCHARD FARMS, 1944

	Average of 6 farms with over 30 ^a A. in orchard	Average of 7 farms with less than 30 A. in orchard
Cash Receipts		
Horses.....	\$ 104	\$ 30
Cattle.....	539	1,360
Dairy sales.....	1,412	282
Hogs.....	459	1,314
Sheep.....	0	183
Poultry and eggs.....	219	693
Total livestock.....	(2,733)	(3,862)
Fruit.....	15,804	3,502
Grain, hay and seeds.....	232	513
AAA payments.....	153	85
Machinery and equipment.....	283	97
Labor and miscellaneous.....	164	81
Total.....	\$19,369	\$8,140
Cash Expenses		
Land improvements: maintenance ^a	\$ 590	\$ 138
Land improvements: capital purchases ^b	112	443
Farm buildings ^c	410	377
Livestock purchases.....	168	224
Feed.....	822	727
Orchard and crop expense.....	2,652	714
Machinery and equipment: operating expense.....	990	660
Machinery and equipment: capital purchases.....	1,487	875
Hired labor.....	4,307	1,071
Taxes and miscellaneous.....	274	199
Total.....	\$11,812	\$5,428
Cash Balance.....	\$7,557	\$2,712

^a Includes commercial fertilizers and repairs on fences.

^b Includes limestone, rock phosphate, and new fences.

^c Includes new buildings and repairs.

an important source of income on the large-orchard farms (Table 2). Although the number of farms is too small for us to conclude that dairying is generally the major livestock enterprise on farms with large orchards, the lower production of feed grains is a logical explanation for fewer hogs and feeder cattle.

Income and expenses. The summary of cash income and expenses (Table 2) reflects the difference in the degree of specialization of the large-orchard and small-orchard farms. Of the \$19,369 total receipts of the former, \$15,804 was from fruit sales; dairy sales of \$1,412 was the only other major source of income. On the small-orchard farms total receipts averaged \$8,140, with \$3,862 from the sale of livestock and livestock products, and \$3,502 from fruit. Sales of "grain, hay, and seeds," principally wheat and soybeans, were also larger on the small-orchard farms.

Expenses also reflect the difference in specialization and indicate that the larger orchards are better cared for and indicate why they have somewhat higher yields (Table 2). For items recorded as land improvements expenses (Table 2) the large-orchard farms spent \$590 per farm for "maintenance" and the small-orchard farms \$138. This item largely represents commercial fertilizers. On the other hand, the small-orchard farms had greater expenses for capital purchases of land improvements, including limestone and rock phosphate. This reflects the greater emphasis on field crops on these farms.

On the large-orchard farms hired labor averaged \$4,307 and was by far the largest item of expense. It was followed by \$2,652 for orchard and

TABLE 3.—INVESTMENTS, 13 SOUTHERN ILLINOIS ORCHARD FARMS, 1944

	Average of 6 farms with over 30 A. in orchard	Average of 6 farms with less than 30 A. in orchard
Capital Investments, January 1		
Land.....	\$ 6,440	\$5,882
Land improvements and fruit trees.....	7,157	1,272
Farm buildings.....	1,745	1,798
Horses.....	401	284
Cattle.....	1,158	1,985
Hogs.....	225	416
Sheep.....	0	163
Poultry.....	112	173
All livestock.....	(1,896)	(3,021)
Bees.....	68	0
Feed and grain.....	1,951	2,061
Machinery and equipment.....	2,223	1,544
Total.....	\$21,480	\$15,578
Inventory Changes, January 1-December 31		
Land improvements and fruit trees.....	\$- 89	\$ 323
Farm buildings.....	114	209
Livestock.....	-221	-892
Feed and grain.....	104	107
Machinery and equipment.....	742	492
Total.....	\$ 650	\$ 239

crop expenses, including spray materials and baskets, and a total of \$2,477 for machinery and equipment, including \$990 for operation and \$1,487 for new machinery and equipment. On the small-orchard farms operating expenses and capital purchases of machinery and equipment made up the largest item of expense. Both groups of farms purchased a good deal of new machinery in 1944, as indicated by both the cash expenses in Table 2 and the inventory increases in Table 3. Little livestock was purchased on either group of farms; feeds purchased averaged \$822 per farm on the larger orchard farms and \$727 on the smaller.

With regard to miscellaneous income and expense factors, in general, differences between the two groups of farms reflect differences in the sizes of particular enterprises. The large orchards averaged \$245 fruit sales per acre, the small orchards \$180. A much higher proportion of the labor was hired on the large-orchard farms. Since hired labor was largely for orchard work in both groups, the hired labor cost per acre of orchard is a rough approximation of the total labor cost on the orchards.

Orchard and crop expense included purchased field crop seeds as well as such orchard expenses as spray materials and baskets. For this reason the orchard and crop expense per acre of orchard, \$41.12 for large-orchard farms and \$36.80 for small-orchard farms, probably understates the difference in strictly orchard expenses on the two groups.

Poultry returns per hen averaged \$2.55 on the large-orchard farms, and \$4.49 on the small-orchard farms. Dairy returns per cow milked were much higher on the large-orchard farms, \$185 compared to \$106 on the small-orchard farms. These differences reflect the relative importance of the poultry and dairy enterprises on the two groups of farms. Returns per \$100 worth of feed fed averaged \$151 on the large-orchard farms and \$146 on the small-orchard farms. On the large-orchard farms a large part of the feed was fed to dairy cows; on the small-orchard farms it was fed largely to hogs, beef cattle, and poultry. In view of this fact and the feed ratios prevailing in 1944 the \$146 returns on the small-orchard farms probably indicate higher efficiency in feeding than does the \$151 on the large-orchard farms.

Investments and inventory changes. The principal difference in the investments of the two groups of farms is in the capitalized value of the orchards (Table 3). The per acre value of land was practically the same for the two groups, but the value of trees was much higher on the large-orchard farms, per acre of orchard as well as per farm. At the beginning of the year total livestock investments were much higher on the small-orchard farms, \$3,021 compared to \$1,896 on the large-orchard farms. This difference was much less at the end of the year because of the greater decrease in livestock inventory on the small-orchard farms.

Although inventories decreased on the average in 1944 on other accounting farms in the areas in which these orchard farms are located, they increased on the orchard farms (Table 3).¹ The difference was mainly in the large increase in machinery and equipment inventory on the orchard farms. The large-orchard farms increased machinery and equipment inventories by \$742 per farm, the small-orchard farms by \$492. On other accounting farms in the areas machinery inventories showed practically no change: purchases of new machinery just about balanced depreciation. The small-orchard farms had a decrease of \$892 per farm in livestock inventory (Table 3), mainly in beef cattle; two of the seven farms had cattle on feed at the beginning of the year, but none at the end.

J. E. WILLS and O. B. BROWN

¹The 13 orchard farms were located in type of farming areas 7 and 9. "Other accounting farms," with which the orchard farms are compared at this point and in the summary, are farms included in the area reports, and in the state report, of the accounting project. These reports, in which the orchard farms were not included, are:

AE2318, Your Farm Business Report, 1944, Farming Type Area 7.

AE2320, Your Farm Business Report, 1944, Farming-Type Area 9, and Illinois Farm Economics, Number 122-123, July-August, 1945, Summary of Annual Farm Business Reports of 2767 Illinois Farms for the year 1944.

A special report was prepared for the orchard farms.

Footnotes for the last page:

¹⁻¹²The first source is for annual data; the second is for current data from which tables may be brought to date.

¹Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ²Same as footnote 1. ³Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹Preliminary estimate. ¹²Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE — Cooperative Agricultural Extension
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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	117	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	188	245	199
1943.....	103	123	166	127	251	243	191	239	330	239
1944.....	104	124	168	132	265	249	189	266	334	236
1944 Aug. . . .	104	123	168	133	261	185	139	265	330	232
Sept.	104	123	166	133	244	196	147	266	329	230
Oct.	104	123	170	133	262	295	222	272	330	232
Nov.	104	124	169	134	267	314	234	272	327	232
Dec.	105	126	170	134	264	270	201	277	332	232
1945 Jan. . . .	105	126	173	134	278	239	178	274	330	234
Feb.	105	127	174	134	312	226	169	274	329	236
Mar.	105	127	174	135	294	249	184	276	326	235
Apr.	106	129	174	135	296	228	169	276	317	231
May	106	130	174	135	293	242	179	274	307	225
June	106 ¹¹	130	175	135	287	227	168	274	302	220
July	106 ¹¹	129	174	135	286	...	...	...	286	211
Aug.	106 ¹¹	127	174	135	...	...	...	...	...	188 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Sept. 1944	Current months		
	1935-39	1943	1944		July	August	Sept.
Corn, bu.....	\$.66	\$.98	\$ 1.07	\$ 1.09	\$ 1.08	\$ 1.08	\$ 1.08
Oats, bu.....	.31	.66	.74	.62	.64	.59	.60
Wheat, bu.....	.86	1.43	1.54	1.46	1.54	1.54	1.55
Barley, bu.....	.62	1.00	1.16	1.04	1.05	1.08	1.09
Soybeans, bu.....	.90	1.68	1.91	1.92	2.10	2.10	2.05
Hogs, cwt.....	8.52	14.07	13.47	14.00	14.20	14.20	14.20
Beef cattle, cwt.....	7.88	13.46	13.34	13.20	13.70	13.20	12.90
Lambs, cwt.....	8.36	13.57	13.52	12.80	14.40	13.50	12.60
Milk cows, head.....	58.00	129.25	124.50	121.00	125.00	128.00	128.00
Veal calves, cwt.....	8.66	14.40	13.88	13.70	14.50	14.30	13.70
Sheep, cwt.....	3.58	6.58	5.67	4.60	7.10	6.30	5.90
Butterfat, lb.....	.27	.49	.49	.48	.48	.48	.48
Milk, cwt.....	1.68	2.97	3.02	3.00	2.85	2.90	3.00
Eggs, doz.....	.19	.36	.31	.31	.33	.35	.32
Chickens, lb.....	.15	.24	.24	.24	.28	.29	.26
Wool, lb.....	.25	.42	.42	.42	.43	.45	.46
Apples, bu.....	1.08	2.49	3.11	2.70	2.80	2.70	2.50
Hay, ton.....	9.39	15.11	17.65	15.70	17.00	15.90	15.30
Potatoes, bu.....	.91	1.92	1.83	2.00	2.55	2.20	1.80

¹²For sources of data in tables see preceding page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture • University of Illinois • Department of Agricultural Economics

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WAGE RATES AND FUTURE PRICE LEVELS

It is to be hoped that in the next few years we shall avoid both a postwar inflation and a postwar deflation. One requirement for this is the prevention of too rapid increases in the average level of hourly wage rates. Of course adjustments will be necessary in both the wage rate and commodity price structures. Varying wartime increases in wages, prices, and labor productivity have resulted in an unbalanced situation which is inequitable as between different groups of wage earners, employers, and consumers. Just what readjustments are to be made should be determined by the free play of competitive forces in so far as that is possible. However, it must also be recognized that competition does not work well under unstable monetary and credit conditions, whether they be of an inflationary or deflationary character. Pending the time when money and credit are properly stabilized we need continued price and wage controls. Furthermore, large corporate organizations and labor combinations also interfere with the effective operation of competition and we shall continue to need government regulation of a sort designed to attain substantially the same balance of prices, wages, and production that would be reached in a fully competitive economy.

If hourly wage rates should remain at about the present level, we can expect that wholesale commodity prices during the decade following the war will at first be substantially above 1939 levels, but that they will gradually decline until by the end of the decade they will be nearly as low as in 1939. If, on the other hand, we are to maintain a steady level of commodity prices, there should be a gradual rise in hourly wage rates — a rise commensurate with the gradual rise in productivity, which results from the adoption of improved methods of production throughout indus-

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

try. Maintenance of average hourly wage rates in manufacturing at the present level would presumably result in the average level of commodity prices of the next two years being about the same as at present.

All this does not imply that the originating cause of inflation or deflation of commodity prices lies in wage rates. On the contrary, the basic reason that we have had some price inflation during World War II, and that we are in danger of having a much greater price inflation during the next year or two, lies in the federal fiscal and banking policies of the past four years. The policy of making up a large part of the annual budget deficits of the federal government through the sale of bonds to commercial banks is a policy of credit inflation. This has been the mainspring responsible for the pressures of price inflation. It caused more purchasing power to be available for the purchase of goods and service than there were goods and services to be bought.

Thus far price controls and wage controls, together with rationing and allocation of raw materials, have prevented the large credit inflation from resulting in a corresponding degree of commodity price inflation. But there remain abnormally swollen bank deposits and currency reserves which still promise to bring a full measure of inflation if they are permitted to do so. The pressure resulting from credit inflation will remain in force so long as it is not removed by a postwar credit contraction.

During the war, price control was more difficult and less successful (as measured by the amount of price increase) for farm products and foods than for any other major group of commodities. But now the situation has changed. Government purchases for relief shipments are not likely to be on such a liberal basis as were our purchases of food for the use of the armed forces. Furthermore the accumulation of normal inventories of foods in the war torn countries will be offset in part by the reductions of military stocks and there will no longer be destruction of supplies in combat. Consequently there has been an easing of the pressure of needs for our farm products and this will continue in the next year or two. Demand for manufactured goods for civilian use, however, will continue urgent, especially for those durable consumer goods whose production was halted during the war. Because of this, and because industrial production is of dominant importance in our economy, the behavior of prices of manufactured products will largely determine the future commodity price level. At times prices of farm products will be abnormally high or abnormally low compared with other prices. In the long run, however, farm products will have to conform to the level set by other products.

Normally most manufactured products are priced to conform fairly closely with calculated costs of production and the amount produced is whatever amount can be sold at the prevailing prices. This custom makes

the prices of manufactured commodities less subject to change in response to changes in demand — including the pressures of credit inflation or deflation — than is the case with farm products.

For most non-agricultural products the cost of labor constitutes, in the final analysis, the great bulk of the costs of production. For any business or industry in which costs of raw materials are large, this may not at first seem to be true, but when we find out how much of the raw materials cost is, in the final analysis, labor cost, the truth of the statement becomes evident. Prices of manufactured products are largely influenced by wage costs and, therefore, by hourly wage rates. Distribution costs are also largely labor costs.

Since 1939 there has been a rapid rise in average hourly earnings of factory employees. This rise has been made up of three components: First, there has been a rise in the basic or "straight time" hourly rates. Second, there was an increase in the hours of work per week and hence in the amount of "overtime" pay. As overtime hours are paid for at a higher rate than the standard hours of work, this has resulted in increasing the average hourly earnings. Finally, during the war a shift of workers from lower paid occupations and industries into higher paid war industries was reflected in the average hourly earnings. In 1944, average hourly earnings of workers in all manufacturing industries were 61 percent above the 1939 level. "Straight time" hourly earnings, on the other hand, were only 52 percent above the 1939 level, and if allowance is made for the shifts of employment between industries, average "straight time" hourly earnings in 1944 were only 40 percent above the 1939 level.

In appraising the significance of current wage rates as applied to peacetime conditions, it is important that we consider "straight time" hourly earnings, or hourly earnings which include only an amount of overtime typical in normal times. Furthermore, if an average for all industries is used the different industries should be weighted in accord with their relative importance under peacetime conditions.

There are many divergent opinions as to what is, or should be, the relationship between wages and prices. Sometimes this results from a confusion between monthly or weekly wage payments and hourly wage rates. Even where the problem is clearly the relationship between hourly wage rates and prices, there is a confusion of opinions. According to some, wage rates should rise as much as, but no more than, the cost of living. Another view is that any rise whatever in wage rates is likely to cause inflation. Many people hold that hourly wage rates should be raised sufficiently so that the pay per worker for a standard work week should be equal to what the workers have been paid in the past year for an overtime work week. Still another view is that wage rates should be increased in

whatever industries or plants can afford to increase them—that is, wherever profits are above a bare minimum.

Some of these matters can be clarified by an examination of the broad historical relationships between wage rates and prices. Such an examination cannot give a sound basis for judging whether wage rates are too low or too high in any particular industry or trade. It can, however, provide a guide for judging whether wage rates generally are now abnormally low or abnormally high relative to the current level of commodity prices. It can also provide a basis for judging what effect the maintenance of any particular level of wage rates might be expected to have upon the future level of prices.

Of outstanding importance is the fact that hourly wage rates have risen relative to prices. This is not something which has happened just during the war. It has happened consistently and fairly steadily over a period of more than a century. The yearly course of average hourly earnings in manufacturing industries compared with the wholesale prices of manufactured products for the years 1923 to 1945 is shown by Table 1. From this it is apparent that although from year to year the two series have tended to move together, wage rates have risen much more than

TABLE 1.—WAGE RATES AND WHOLESALE PRICES 1923-1945

Year	Average wage rates in manufacturing industries ^a		Wholesale prices of manufactured products 1926 = 100	Ratio of wage rates to prices 1926 = 100
	Cents per hour	Index 1926 = 100		
1923.....	.520	94.9	99.2	95.7
1924.....	.545	99.5	96.3	103.3
1925.....	.544	99.3	100.6	98.7
1926.....	.548	100.0	100.0	100.0
1927.....	.552	100.7	95.0	106.0
1928.....	.560	102.2	95.9	106.6
1929.....	.566	103.3	94.5	109.3
1930.....	.552	100.7	88.0	114.4
1931.....	.517	94.3	77.0	122.5
1932.....	.458	83.6	70.3	118.9
1933.....	.455	83.0	70.5	117.7
1934.....	.541	98.7	78.2	126.2
1935.....	.559	102.0	82.2	124.1
1936.....	.564	102.9	82.0	125.5
1937.....	.634	115.7	87.2	132.7
1938.....	.639	116.6	82.2	141.8
1939.....	.633	115.5	80.4	143.7
1940.....	.661	120.6	81.6	147.8
1941.....	.729	133.0	89.1	149.3
1942.....	.853	155.7	98.6	157.9
1943.....	.961	175.4	100.2	175.0
1944.....	1.019	185.9	100.8	184.4
1945 ^b	1.025	187.0	101.8	183.7
On basis of 1939 overtime and weighting by industries				
1939.....	.633	115.5	80.4	143.7
1940.....	.648	118.2	81.6	144.9
1941.....	.693	126.5	89.1	142.0
1942.....	.771	140.7	98.6	142.7
1943.....	.835	152.4	100.2	152.1
1944.....	.884	161.3	100.8	160.0
1945 ^b.....	.922	168.2	101.8	165.2

^a Factory average hourly earnings compiled by Bureau of Labor Statistics.

^b Monthly data, August 1945.

have prices of manufactured products. The relative rise of wage rates is shown clearly by the fourth column. Here it may be seen that the wage-price ratio rose quite steadily from 103 in 1924 to 152 (basis overtime and weighting as in 1939) in 1943. At this rate of increase an "average" or trend value to be expected for 1945 would be about 160, whereas by 1955 it would be about 200.

The rise of average hourly earnings in manufacturing relative to the prices of manufactured products has been made possible primarily by a rather gradual improvement in manufacturing methods. If we continue to have such improvements during the next 10 years at the same rate as they have taken place in the past 20 years we may expect that by 1955 hourly wage rates in the manufacturing industries will be about twice as high relative to wholesale prices of manufactured products as was the case in 1926.

Under the foregoing assumptions it appears that if in 1955 we are to have a price level as high as that of 1926, wage rates in manufacturing industries should probably average about twice as high as they did in 1926 or about 20 percent higher than the present level. Wholesale prices of manufactured products are now at approximately the same level as in 1926. If wage rates were to be maintained at their present level — about 70 percent higher than in 1926 — this would appear likely to entail in the near future a further rise of about five percent in wholesale prices of manufactured products. Farm products which are now about 25 percent above their 1926 level (at wholesale) would, in that case, be expected to decline within the next year or two to somewhere near the 1926 level. Of course, prices of farm products will continue to be influenced by many

TABLE 2.—WHOLESALE PRICE LEVELS OF MANUFACTURED PRODUCTS CALCULATED FROM SPECIFIED LEVELS OF WAGE RATES AND FROM TREND VALUES OF WAGE PRICE RATES FOR 1945, 1950 AND 1955^a

Assumed average hourly earnings in manufacturing	Calculated price level (1926 = 100)		
	1945	1950	1955
1926 level..... (54.8¢)	62	56	50
1939 level..... (63.3¢)	72	64	58
July 1945 level ^b (92.2¢)	105	93	84
10% over July 1945 ^b (101.4¢)	116	103	92
20% over July 1945 ^b (110.6¢)	126	112	101
30% over July 1945 ^b (119.9¢)	137	121	109

^a The price levels indicated in the table are the "normal" levels of wholesale prices of manufactured products indicated for the assumed wage rates on the basis of the 1923 to 1941 trend in the ratio of average hourly earnings to wholesale prices of manufactured products. The actual price index for 1945 will be about 106.

^b The July 1945 level of average hourly earnings is calculated from B. L. S. figures of straight time average hourly earnings with 1939 industry weightings. This figure is raised by the same percentage which total average hourly earnings exceeded straight time average hourly earnings in 1939.

TABLE 3.—INDEXES OF WAGES, PRICES, AND THE COST OF LIVING,
SELECTED MONTHS 1918 TO 1945

	Wage rates all industries ^a	Wholesale prices ^b			Cost of living ^c
		Manufactured products	Farm products	All com- modities	
		(1913 = 100)			
November 1918.....	...	188	234	195	164
January 1919.....	161	185	240	193	167
July 1919.....	180	188	256	202	176
January 1920.....	206	214	265	226	195
July 1920.....	220	227	250	238	210
January 1921.....	216	172	158	163	192
January 1922.....	191	133	137	131	171
January 1923.....	198	144	155	146	170
January 1924.....	213	142	142	143	174
		(1939 = 100)			
August 1945.....	152	127	194	137	130

^a Index of Federal Reserve Bank of N. Y. index of composite wages—mostly average hourly earnings.

^b Indexes of Bureau of Labor Statistics of U. S. Dept. of Labor.

^c Index of Federal Reserve Bank of N. Y.

supply and demand factors which are not directly related to prices of manufactured products. Nevertheless, through the influence of competitive relationships and the parity price formula, farm product prices tend to fluctuate about the level of prices of manufactured products.

To summarize the relationships to be expected between wage rates and prices now and ten years hence, the results of a series of calculations are shown in Table 2. The calculation of "normal" price levels are in each case based upon the evidence already presented concerning the gradual rise in wage rates relative to prices, including a projection of the trend of the wage price ratio (1926 = 100) to values of 160 for 1945 and 200 for 1955.

In considering the various assumed levels of wage rates, one should remember that after the first World War ended there was a marked further rise of both wages and prices. Table 3 shows indexes of wage rates, prices, and the cost of living for selected months following that war.

It will be observed that for each series there was not only a marked postwar rise but a later decline. In the decline after July 1920, wage rates did not again fall as low as they had been at the close of the war. The same was true of the cost of living, but wholesale prices fell to much lower levels than those which prevailed at the close of the war.

At the close of World War I, wage rates had not risen from their prewar levels nearly as much as had wholesale prices. They had not risen quite as much as the cost of living. From early 1919 through the middle of 1920 wage rates rose much more rapidly than commodity prices and a little more rapidly than the cost of living. During the depression of 1920-21, wholesale commodity prices fell precipitously until, at their low point, they were but little more than half their peak levels. The decline in

the cost of living was much less than in wholesale prices and there was relatively little reduction in the all-industry average level of wage rates.

By January 1923 wage rates were about 20 percent higher (relative to the prewar level) than the cost of living and about 35 percent higher than the wholesale price level. These relative levels represented an approximate balance between wage rates, the cost of living, and wholesale commodity prices in view of the advance in production efficiency which had taken place in the 10 years from 1913 to 1923.

During the second World War, wage rates rose more rapidly than prices of manufactured products or the cost of living. Wholesale prices of farm products rose much more than wage rates, but it should be borne in mind that farm product prices appear to have been abnormally low in 1939.

At the close of the second World War there was a better balance between wage rates, the cost of living, and the average level of wholesale prices than at the close of the first World War. In August the wage rate index was 17 percent higher (relative to 1939) than the cost of living index and 22 percent higher than the index of wholesale prices of manufactured products. It, consequently, appears that less drastic readjustment is necessary in the price and wage structure than was necessary at the close of World War I. Although farm products are relatively high, a downward adjustment is more easily accomplished than in the case of wage rates or prices of inflexibly priced commodities. This better adjustment of price (including wage) relationships is one favorable factor which may help to make it possible to avoid further price inflation.

E. J. WORKING

WHAT ABOUT THE FUTURE OF MILK PRICES?

Many dairymen are asking the question: What about the future of milk prices? Are prices now received likely to continue at their present level or may we expect materially lower prices during the next few years?

Historically, major changes in consumer income have been accompanied by similar changes in the prices of milk and its products. From 1921 to 1939, for example, a study presented in *Illinois Farm Economics* (July 1940) showed the coefficient of correlation between butter prices and consumer income to be .87. Since a perfect correlation is equal to 1.00, this showed a high degree of relationship between these factors for that period. This study also showed the high degree of relationship between prices of butter and cheese (correlation .96) and between butter and condensery prices (correlation of .98) from 1921 to 1939. From 1907 to 1919 the coefficient of correlation between butter prices and market-milk prices

in Chicago was .93 and in St. Louis (1909 to 1929) .95. While market-milk prices in Chicago between 1919 and 1935 and in St. Louis between 1929 and 1940 were subjected to certain artificial restraints, with the initiation of flexible Class I prices in Chicago in 1935, and in St. Louis in 1940, market-milk prices in recent years in both of these markets have been in line with prices of manufactured products. Summing up the facts shown by the July 1940 study, we find:

1. Butter prices tended to change with changes in consumer income; and
2. Cheese prices, condensery prices, market-milk and market-cream prices tended to change with changes in butter prices.

From the viewpoint of dairymen in the United States, whether producers of market milk, market cream, condensery milk, milk for cheese, or cream for butter, *the most important single factor which is likely to affect the prices which they receive during the next few years is changes in consumer income.* With this fact in mind, tabulations have been made for changes in national income (representing consumer income) and changes in national debt from 1939 to 1945.

The national income of 161 billion dollars in 1944 was $2\frac{1}{4}$ times the 71 billion dollars of 1939, while the national debt of 231 billion dollars in 1944 was $5\frac{1}{2}$ times the 42 billion dollar debt of 1939. The largest increase in the national debt took place from 1943 to 1944 when it increased from 166 to 231 billion dollars — a net increase of 65 billion dollars. Hence in 1944 we went into debt for about two-fifths ($65/161$) of the national income received for that year.

Looking at the present situation we may observe that:

1. Assuming no major inflation in the general level of prices, the national income and milk prices during the next few years are likely to be materially less than those of 1944 and 1945. Reduction of government expenditures for war production has been followed by the elimination of overtime pay and a smaller work force in many factories. From August 18 to September 29 the number of people receiving unemployment insurance increased from 326,462 to 1,634,622.¹ It is probable that with the continued demobilization of our armed forces, there will be many more people unemployed by the spring of 1946. Elimination of overtime pay and a smaller work force are likely to far more than offset any increase in the hourly rates of pay which may be granted by some industries.

2. The federal government has promised to maintain farm prices during the two years following the war at 90 percent of parity. According to Department of Agriculture figures, the actual milk price for August 1945 averaged \$3.14 per hundred pounds (exclusive of subsidy), or \$.43

¹United States News, October 26, 1945, page 20.

TABLE 1.—CHANGES IN NATIONAL INCOME AND NATIONAL DEBT,
UNITED STATES, 1939 TO 1945

	National income ^a		Changes in national debt ^b (billions of dollars)		National income less increase in national debt	
	Total	Percent 1939 = 100	Total	Increase during year	Total	Percent 1939 = 100
1939.....	\$ 70.8	100.0	\$ 42.0	\$ 2.5	\$68.3	100.0
1940.....	77.6	109.6	45.0	3.0	74.6	109.2
1941.....	96.9	136.9	58.0	13.0	83.9	122.8
1942.....	122.2	172.6	108.2	50.2	72.0	105.4
1943.....	149.4	211.0	165.9	57.7	91.7	134.3
1944.....	160.7	227.0	230.6	64.7	96.0	140.6
1945 ^c	144.1	203.5	278.6	48.0	96.1	140.7

^a Data from U. S. Department of Commerce Survey of Current Business.^b From U. S. Federal Reserve Bulletins.^c Preliminary estimates.

above the parity price of \$2.71. If supply and demand push milk prices below the support level, presumably the government will support the market price by one means or another.

3. Assuming a major inflation in the general level of prices, it would be possible for the national income and milk prices to rise above the 1944 and 1945 levels in a manner somewhat like that for 1919 and 1920. Such price increases would likely be followed by a major deflation in prices such as was experienced in 1921 and subsequent years. The decline in milk prices in this situation would likely be much more severe after inflation had run its course than if no major inflation should take place.

Summing up, *it seems probable that prices received by producers for milk and its products within the next few years are likely to fall considerably below those received in 1944 and 1945.*

Changes in prices to market-milk producers. Further insight into probable changes in milk prices can be obtained by comparing the situation during and following World War I with that of World War II in the Chicago and St. Louis milk markets. Changes in the net blend prices received by milk producers from 1914 to 1922 and for 1939 to 1945 in these markets were as shown in Table 2.

In 1914 the net blend price for 3.5 percent milk in the 70-mile zone of the Chicago market was \$1.60 per 100 pounds, or only about half of \$3.25, the average price for the peak year of 1919. During this period the largest price increase was from 1916 to 1917 when the blend price increased from \$1.72 to \$2.37 per 100 pounds. While World War I ended in November 1918, the net blend price increased from 1918 to 1919 and was high for both 1919 and 1920 as a result of indirect governmental support of food prices in both 1919 and 1920. Sharp decreases in consumer income accompanied by withdrawal of this governmental support in the latter part of

TABLE 2.—CHANGES IN NET BLEND PRICES PER 100 POUNDS TO MARKET-MILK PRODUCERS, CHICAGO AND ST. LOUIS, 1914 TO 1922, AND 1939 TO 1945

Chicago—70 mile zone				St. Louis—f.o.b. market			
Year	Price ^a	Year	Price ^b	Year	Price ^a	Year	Price ^c
1914.....	\$1.60	1939.....	\$1.56	1914.....	\$1.85	1939.....	\$1.82
1915.....	1.58	1940.....	1.67	1915.....	1.64	1940.....	1.90
1916.....	1.72	1941.....	2.06	1916.....	1.75	1941.....	2.26
1917.....	2.37	1942.....	2.45	1917.....	2.48	1942.....	2.75
1918 ^d	2.87	1943.....	3.01 (3.08) ^e	1918.....	3.16	1943.....	3.40 (3.49) ^g
		1944.....	3.04 (3.50) ^e			1944.....	3.45 (3.94) ^g
		1945 ^d	3.00 (3.47) ^e			1945 ^d	3.37 (3.90) ^g
1919.....	3.25	1946.....	(?)	1919.....	3.52	1946.....	(?)
1920.....	3.17	1947.....	(?)	1920.....	3.49	1947.....	(?)
1921.....	2.09	1948.....	(?)	1921.....	2.32	1948.....	(?)
1922.....	1.87	1949.....	(?)	1922.....	2.06	1949.....	(?)

^a Illinois Agricultural Experiment Station Bulletin 269 (1925), p. 536, Table A.

^b From Chicago Federal Milk Market Administrator less 4 cents for 1939-1943 and 5 cents for 1944-1945.

^c Prices for 1943-1945, in parenthesis, include federal subsidies paid producers which were as follows: October to December 1943, 30 cents per 100 pounds; January and February 1944, 35 cents; March and April 1944, 50 cents; May to August 1944, 35 cents; September 1944 to April 1945, 60 cents; May and June 1945, 25 cents; July to September 1945, 45 cents; October 1945 to continue thru March 1946, 60 cents per 100 pounds. 1945 price for January thru June.

^d End of war, 1945 price for first eight months.

^e From Illinois Agricultural Experiment Station Bulletin 412 (1935), p. 173. Adjusted from country plant prices to f.o.b. city prices by adding 30 cents.

^f From St. Louis Federal Milk Market Administration.

^g Prices for 1943-1945, in parenthesis, include federal subsidies paid producers which were as follows: October 1943 to February 1944, 35 cents per 100 pounds; March and April 1944, 50 cents; May to August 1944, 35 cents; September 1944 to March 1945, 70 cents; April 1945, 60 cents; May and June 1945, 25 cents; July to September 1945, 45 cents; October 1945 to March 1946, 60 cents per 100 pounds.

1920 resulted in sharp decreases in milk prices. Many condenseries which had greatly expanded their production closed down in the latter months of 1920 because of lack of a market. The 1921 price of \$2.09 received by Chicago market-milk producers was \$1.08 less per 100 pounds than the \$3.17 received in 1920. By 1922 the price had fallen to \$1.87, or \$1.38 less than the \$3.25 received in the peak year of 1919.

Price changes in the St. Louis market were similar to those in the Chicago market. By 1919 the average price f.o.b. the St. Louis market of \$3.52 was nearly double the \$1.85, the price received in 1914. In St. Louis the largest increase took place between 1917 and 1918 when the price increased from \$2.48 to \$3.16, or 68 cents per 100 pounds. As in Chicago, St. Louis producers received their peak prices in 1919 (\$3.52) and in 1920 (\$3.49).

Likewise, as in Chicago, sharp price reductions occurred with a decline in consumer's income and withdrawal of the indirect governmental price support. By 1921 the blend price had declined to \$2.32 and by 1922 to \$2.06 per 100 pounds of milk.

While World War II lasted two years longer than World War I the pattern of price increases followed closely those of World War I for both the Chicago and the St. Louis markets. From \$1.56 per 100 pounds in 1939, the net blend price in Chicago increased to \$3.04 in 1944. This plus the government subsidy averaging \$.46 gave producers in 1944 a total

TABLE 3.—CHANGES IN THE AVERAGE PRICES PER 100 POUNDS OF 3.5 PERCENT MILK TO CONDENSERY PRODUCERS IN THE CHICAGO AND ST. LOUIS MILKSHEDS, 1914 TO 1922, AND 1939 TO 1945

Chicago				St. Louis			
Year	Price ^a	Year	Price ^b	Year	Price ^d (Greenville)	Year	Price ^c
1914.....	\$1.58	1939.....	\$1.24	1914.....	\$1.71	1939.....	\$1.28
1915.....	1.55	1940.....	1.37	1915.....	1.56	1940.....	1.43
1916.....	1.72	1941.....	1.84	1916.....	1.68	1941.....	1.90
1917.....	2.43	1942.....	2.06	1917.....	2.53	1942.....	2.06
1918.....	2.87	1943.....	2.61	1918.....	2.89	1943.....	2.61
		1944.....	2.64			1944.....	2.63
		1945.....	2.62 ^e			1945.....	2.61 ^f
1919.....	3.25	1946.....	(?)	1919.....	3.27	1946.....	(?)
1920.....	2.94	1947.....	(?)	1920.....	3.11	1947.....	(?)
1921.....	1.87	1948.....	(?)	1921.....	1.94	1948.....	(?)
1922.....	1.69	1949.....	(?)	1922.....	1.76	1949.....	(?)

^a Illinois Agricultural Experiment Station Bulletin 269, 1925, page 538, Table G.

^b Federal Milk Market Administration.

^c January-June average.

^d Illinois Agricultural Experiment Station Bulletin 412, 1935, page 175, Table 31.

^e Federal Milk Market Administrator Report, 1934-1944. (1945). Table 33. Greenville prices, 1939-1942. Prices from 1942 to 1945 were the average paid for 3.5 percent milk by 23 condenseries named in Federal Order No. 3.

^f January-July average.

price of \$3.50, or more than twice the price received in 1939. In St. Louis the f.o.b. market price increased from \$1.82 in 1939 to \$3.45 in 1944. This plus the government subsidy of \$.49 gave producers a total price of \$3.94 in 1944. Up until the middle of the year 1945 prices were held at about the same levels as those for 1944.

Changes in prices of condensery milk, butter, and cheese. Changes in prices received by producers for condensery milk in both World Wars I and II corresponded closely to those in prices of market-milk producers. These changes were as shown in Table 3.

Between World War I and World War II, many markets, including both Chicago and St. Louis, initiated more stringent quality requirements for market milk and paid premiums for the higher quality milk produced. While the quality of milk used for condensery purposes was also materially improved in many producing areas during this same period, prices paid producers for condensery milk since World War I have been established at a level somewhat lower than for market milk.

Prices of butter and cheese during World Wars I and II fluctuated in much the same way as did prices of market milk.

Price ceilings in World War II, particularly on butter, kept the peak of World War II prices considerably lower than they would otherwise have been.

Changes in prices of dry skim milk. Prices of dry skim milk are very sensitive to changes in consumer income and other economic forces. From 1929 to 1932 the price of this product for animal feed decreased from 7.1

TABLE 4.—CHANGES IN THE AVERAGE WHOLESALE PRICES OF CHICAGO 92-SCORE BUTTER AND IN AVERAGE WHOLESALE PRICES OF WISCONSIN PLYMOUTH TWINS CHEESE, 1914 TO 1922 AND 1939 TO 1945

92-Score Butter: Chicago market ^a				Cheese: Plymouth Twins: Wisconsin ^a			
Year	Price (cents per lb.)	Year	Price (cents per lb.)	Year	Price (cents per lb.)	Year	Price (cents per lb.)
1914.....	28.0 ^b	1939.....	25.4	1914.....	13.0 ^c	1939.....	12.8
1915.....	28.0 ^b	1940.....	28.7	1915.....	12.0 ^c	1940.....	14.3
1916.....	32.0 ^b	1941.....	33.8	1916.....	16.0 ^c	1941.....	19.4
1917.....	41.0 ^b	1942.....	39.5	1917.....	21.0 ^c	1942.....	21.6
1918.....	49.8	1943.....	46.0	1918.....	24.0 ^c	1943.....	25.4
		1944.....	46.0			1944.....	27.0
		1945.....	46.0 ^d			1945.....	27.0 ^d
1919.....	58.5	1946.....	(?)	1919.....	29.0	1946.....	(?)
1920.....	58.5	1947.....	(?)	1920.....	24.9	1947.....	(?)
1921.....	41.7	1948.....	(?)	1921.....	18.3	1948.....	(?)
1922.....	39.1	1949.....	(?)	1922.....	19.3	1949.....	(?)

^a From Report of the U. S. D. A. Agricultural Marketing Service.

^b From U. S. D. A. Prices of New York 92-score butter less 2 cents per pound. Chicago butter prices not reported for these years.

^c From U. S. D. A. New York wholesale prices of less cheese No. 1. American fresh less 3 cents per pound. Wisconsin cheese prices not reported for these years.

^d U. S. D. A. January-October.

cents to 3.1 cents per pound. Rising to 7.4 cents in 1936, by 1940 the price of skimmilk for animal use had declined to 4.7 cents per pound.

During World War II most of this product was diverted to human use. The price of dry skimmilk for human use increased from 7 cents a pound in 1940 to 14.1 cents a pound in 1944. Changes in the prices of this product for 1926 to 1945 were as shown in Table 5.

Competition of milk with alternative products. Farmers tend to shift their production to the products which are most profitable. For example, if the prices of market milk are high in relation to condensery prices, condensery producers get their farms and equipment inspected and prepare to sell market milk. A greater supply of market milk with no

TABLE 5.—CHANGES IN WHOLESALE PRICES OF DRY SKIMMILK F.O.B. SHIPPING POINT^a

Year	Animal (cents per lb.)	Human	Year	Animal (cents per lb.)	Human
1926.....	10.8	...	1938.....	3.8	5.6
1927.....	9.4	...	1939.....	5.1	6.2
1928.....	9.1	...	1940.....	4.7	7.0
1929.....	7.1	8.4	1941.....	6.3	9.0
1930.....	6.0	7.1	1942.....	8.4	12.7
1931.....	3.4	4.7	1943.....	...	13.7
1932.....	3.1	4.4	1944.....	...	14.1
1933.....	4.1	5.7	1945.....	...	14.0 ^b
1934.....	4.0	6.3	1946.....	(?)	(?)
1935.....	4.4	6.6	1947.....	(?)	(?)
1936.....	7.4	8.6	1948.....	(?)	(?)
1937.....	5.1	7.7	1949.....	(?)	(?)

^a Data from American Dry Milk Institute, 1926-1942. From 1943 to 1945 from Chicago Federal Milk Market Administrator.

^b Average January-June.

TABLE 6.—CHANGES IN PRICES OF CORN AND HAY, HOGS AND BEEF CATTLE, UNITED STATES, 1914 TO 1922 AND 1939 TO 1945^a

Corn (cents per bu.)		Hay (per ton)		Hogs (per cwt.)		Beef cattle (per cwt.)	
1914..\$.73	1939..\$.48	1914..\$11.32	1939..\$6.95	1914..\$7.57	1939..\$6.31	1914..\$6.24	1939..\$7.13
1915.. .72	1940.. .59	1915.. 10.57	1940.. 7.62	1915.. 6.59	1940.. 5.42	1915.. 6.01	1940.. 7.48
1916.. .76	1941.. .64	1916.. 10.54	1941.. 8.10	1916.. 8.20	1941.. 9.14	1916.. 6.48	1941.. 8.75
1917.. 1.41	1942.. .80	1917.. 13.42	1942.. 10.05	1917.. 13.59	1942.. 13.12	1917.. 8.14	1942.. 10.65
1918.. 1.50	1943.. 1.03	1918.. 17.10	1943.. 12.77	1918.. 15.92	1943.. 13.83	1918.. 9.45	1943.. 12.25
	1944.. 1.13		1944.. 15.43		1944.. 13.12		1944.. 11.73
	1945 ^b . 1.07		1945 ^b . 17.45		1945 ^b . 13.98		1945 ^b . 12.20
1919.. 1.57	1946.. (?)	1919.. 20.61	1946.. (?)	1919.. 16.23	1946.. (?)	1919.. 9.72	1946.. (?)
1920.. 1.44	1947.. (?)	1920.. 21.26	1947.. (?)	1920.. 13.02	1947.. (?)	1920.. 8.47	1947.. (?)
1921.. .58	1948.. (?)	1921.. 12.96	1948.. (?)	1921.. 7.84	1948.. (?)	1921.. 5.53	1948.. (?)
1922.. .59	1949.. (?)	1922.. 11.68	1949.. (?)	1922.. 8.40	1949.. (?)	1922.. 5.43	1949.. (?)

^a From Cornell University Farm Economics.^b Data for 1945 for the early part of the year.

increased demand tends to lower market-milk prices. Likewise, if condensery or butter prices are high as compared to prices of beef cattle, beef cattle producers having dual purpose cows, sell more milk or cream. This in turn tends to lower the milk and cream prices. Hence, generally speaking, *in times of major price changes, prices of the principal agricultural products tend to go up and down together.* This fact has been illustrated by changes in the prices of the various dairy products. It is also illustrated by changes in the prices of corn, hay, hogs, and beef cattle for World War I and World War II. These changes are shown in Table 6.

R. W. BARTLETT

BANK DEPOSITS OF FARMERS IN THREE ILLINOIS COUNTIES, MID-1945

Many Illinois farmers have substantial financial reserves as deposits in commercial banks, according to information developed in a mid-1945 survey in Ogle, McLean, and Clay counties. These counties were selected to represent the three regions of the state used in the 1944 survey of post-war agricultural employment opportunities.¹

How farmers' bank deposits in these counties are distributed according to size is revealed in the accompanying table. The farm advisers and the local banks cooperated in collecting these data. All eight banks in Ogle County, twelve of the twenty in McLean County, and four of the five in Clay County supplied figures.

Each bank first segregated its farmer deposit accounts, both checking

¹ Circular 592, College of Agriculture, University of Illinois, Urbana, Illinois, "Postwar Farm Jobs and Farmers' Purchase Intentions—An Illinois Survey of Rural Employment Opportunities," October 1945.

DISTRIBUTION OF DEPOSITS OF OPERATING FARMERS IN MID-1945

Amount deposited	8 Ogle County banks ^a				12 McLean County banks ^b			
	Number	Percent	Amount	Percent	Number	Percent	Amount	Percent
Under \$ 200.....	800	25.9	\$ 80,000	1.8	819	25.9	\$ 81,900	1.5
\$ 200 - 499.....	616	20.0	215,600	5.0	520	16.4	182,000	3.3
500 - 999.....	507	16.4	380,250	8.7	466	14.7	349,500	6.3
1,000 - 1,999.....	513	16.6	789,500	18.2	498	15.7	747,000	13.4
2,000 - 2,999.....	237	7.7	592,500	13.6	255	8.0	637,500	11.5
3,000 - 3,999.....	124	4.0	434,000	10.0	172	5.4	602,000	10.8
4,000 - 4,999.....	98	3.2	441,000	10.1	131	4.1	589,500	10.6
5,000 - 5,999.....	51	1.7	280,500	6.4	79	2.5	434,500	7.8
6,000 - 6,999.....	45	1.5	292,500	6.7	46	1.5	299,000	5.4
7,000 - 7,999.....	15	.5	112,500	2.6	56	1.8	420,000	7.6
8,000 - 8,999.....	26	.8	221,000	5.1	32	1.0	272,000	4.8
9,000 - 9,999.....	12	.4	114,000	2.6	13	.4	123,500	2.2
10,000 & over.....	40	1.3	400,000	9.2	82	2.6	820,000	14.8
Total.....	3,084	100.0	\$4,353,350	100.0	3,169	100.0	\$5,558,400	100.0
Average amount.....			\$ 1,412				\$ 1,754	

Amount deposited	4 Clay County banks ^c				24 banks in three counties			
	Number	Percent	Amount	Percent	Number	Percent	Amount	Percent
Under \$ 200.....	604	27.9	\$ 60,400	3.3	2,223	26.4	\$ 222,300	1.9
\$ 200 - 499.....	548	25.3	191,800	10.4	1,684	20.0	589,400	5.0
500 - 999.....	470	21.8	352,500	19.0	1,443	17.2	1,082,250	9.2
1,000 - 1,999.....	340	15.7	510,000	27.6	1,351	16.1	2,046,500	17.4
2,000 - 2,999.....	101	4.7	252,500	13.6	593	7.0	1,482,500	12.6
3,000 - 3,999.....	60	2.8	210,000	11.4	356	4.2	1,246,000	10.6
4,000 - 4,999.....	11	.5	49,500	2.7	240	2.9	1,080,000	9.2
5,000 - 5,999.....	8	.4	44,000	2.4	138	1.6	759,000	6.4
6,000 - 6,999.....	3	.1	19,500	1.0	94	1.1	611,000	5.2
7,000 - 7,999.....	7	.3	52,500	2.8	78	.9	585,000	5.0
8,000 - 8,999.....	0	.0	0	.0	58	.7	493,000	4.2
9,000 - 9,999.....	7	.3	66,500	3.6	32	.4	304,000	2.6
10,000 & over.....	4	.2	40,000	2.2	126	1.5	1,260,000	10.7
Total.....	2,163	100.0	\$1,849,200	100.0	8,416	100.0	\$11,760,950	100.0
Average amount.....			\$ 855				\$ 1,397	

^a There are 8 banks in Ogle County. ^b There are 20 banks in McLean County. ^c There are 5 banks in Clay County.

and safe deposit accounts of operating farmers only, and then classified them according to size, using the classes shown in the table.

The total amounts in each deposit class were estimated by multiplying the number of depositors by the midpoint amount for the class, except for "\$10,000 and over" class where the minimum \$10,000 figure was used because there was no way of arriving at a midpoint estimate for this class. This procedure, therefore, underestimates the importance of this last class.

The study developed many significant facts which an analysis of the table will reveal.¹ Is it not surprising that 40 farmers in Ogle County have

¹ In the three counties, the total 1944 value of nine farm crops (corn, soybeans, oats, rye, winter wheat, spring wheat, barley, white potatoes, and tame hay) and the total value of livestock (horses, mules, all cattle, sheep, and hogs) were as follows. *Crops*: Ogle, \$13,220,000; McLean, \$26,414,000; Clay, \$2,230,000. *Livestock*: Ogle, \$9,872,300; McLean, \$10,065,900; Clay, \$1,783,500. From *Illinois Annual Crop Summary for 1944*, Illinois Department of Agriculture cooperating with the U.S. Department of Agriculture.

deposits in excess of \$10,000, or that 82 farmers have deposits of this size in the reporting McLean County banks, and 4 in the reporting Clay County banks? While it was to be expected that a large percentage would have deposits of less than \$1,000, it will be noted that over 37 percent of the farmers in Ogle, 43 percent in McLean, and 25 percent in Clay have deposits in excess of \$1,000.

For the three counties, about 46 percent of the depositors have deposits of less than \$500, but they make up only about 7 percent of the total deposits of \$11,760,950 in the cooperating banks in the three counties; about one-third of the depositors in the \$500 to \$1,999 classes hold about 27 percent of the total deposits; about 18 percent of the depositors in the \$2,000 to \$5,999 classes hold approximately 39 percent of the total deposits; and 5 percent of the depositors in the \$6,000 and over classes hold approximately 28 percent of the total deposits.

In analyzing this information it should be borne in mind that the present improved financial condition of Illinois farmers, due to wartime farm incomes, is only partially reflected in their bank deposits. It was frequently observed by bankers contacted in the three counties that many farmers have improved their financial status in at least three other important respects: (1) through more rapid repayment of both long- and short-term debts; (2) through increased capital investments in their farms, particularly in the form of limestone and other fertilizer purchases; and (3) through the purchase of war bonds held for reserves and for contemplated future postwar purchases.

The 24 banks cooperating in the survey, out of the total of 33 in the three counties, reported rather substantial and widespread farmer holdings of war bonds. The estimate for Ogle County was \$3,175,000; for McLean County, \$7,500,000; and for Clay County, \$875,000. It was the almost unanimous opinion of the bankers interviewed that farmers are holding their war bonds.

It was also frequently observed that while many bonds were originally bought by farmers with the idea of cashing them when goods and materials should become available after the war, there is now a growing inclination to hold them to maturity. Farmers indicating such intentions were reported as contemplating using current incomes for their postwar purchases, supplementing them with short-term borrowings, if necessary.

A. T. ANDERSON

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 11-45, 9000
Permit No. 1247

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	117	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	188	245	199
1943.....	103	123	166	127	251	243	191	239	330	239
1944.....	104	124	168	132	265	249	189	266	334	236
1944 Sept....	104	123	166	133	244	196	147	266	329	230
Oct.....	104	123	170	133	262	295	222	272	330	232
Nov.....	104	124	169	134	267	314	234	272	327	232
Dec.....	105	126	170	134	264	270	201	277	332	232
1945 Jan.....	105	126	173	134	278	239	178	274	330	234
Feb.....	105	127	174	134	312	226	169	274	329	236
Mar.....	105	127	174	135	294	249	184	276	326	235
Apr.....	106	129	174	135	296	228	169	276	317	231
May.....	106	130	174	135	293	242	179	274	307	225
June.....	106	130	175	135	287	227	168	274	302	220
July.....	106	129	174	135	282	208	154	...	286	211
Aug.....	106 ¹¹	127	174	135	274	201	140	...	258	188
Sept.....	105 ¹¹	124 ¹¹	172	136	257	...	...	...	...	172 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Oct. 1944	Current months		
	1935-39	1943	1944		August	Sept.	Oct.
Corn, bu.....	\$.66	\$.98	\$ 1.07	\$ 1.08	\$ 1.08	\$ 1.08	\$ 1.08
Oats, bu.....	.31	.66	.74	.65	.59	.60	.64
Wheat, bu.....	.86	1.43	1.54	1.54	1.54	1.55	1.62
Barley, bu.....	.62	1.00	1.16	1.13	1.08	1.09	1.12
Soybeans, bu.....	.90	1.68	1.91	2.04	2.10	2.05	2.05
Hogs, cwt.....	8.52	14.07	13.47	14.10	14.20	14.20	14.30
Beef cattle, cwt.....	7.88	13.46	13.34	13.50	13.20	12.90	12.20
Lambs, cwt.....	8.36	13.57	13.52	12.90	13.50	12.60	13.30
Milk cows, head.....	58.00	129.25	124.50	118.00	128.00	128.00	128.00
Veal calves, cwt.....	8.66	14.40	13.88	13.70	14.30	13.70	14.00
Sheep, cwt.....	3.58	6.58	5.67	4.60	6.30	5.90	5.60
Butterfat, lb.....	.27	.49	.49	.48	.48	.48	.48
Milk, cwt.....	1.68	2.97	3.02	3.10	2.90	3.00	3.00
Eggs, doz.....	.19	.36	.31	.34	.35	.32	.37
Chickens, lb.....	.15	.24	.24	.24	.29	.26	.22
Wool, lb.....	.25	.42	.42	.43	.45	.46	.44
Apples, bu.....	1.08	2.49	3.11	2.90	2.70	2.50	2.75
Hay, ton.....	9.39	15.11	17.65	16.60	15.90	15.30	16.30
Potatoes, bu.....	.91	1.92	1.83	1.80	2.20	1.80	1.50

¹²⁻¹³For sources of data in tables see previous issue.

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ILLINOIS FARM ECONOMICS

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A PROPOSAL FOR SUPPORTING FARM INCOME

The present policy of the United States government is to support farm income. This policy was written into law following a long period of discussion beginning shortly after World War I. The method of doing this has been to support prices of products at some ratio to a calculated parity price. Before the war this support was largely confined to the basic crops, corn, cotton, rice, tobacco, wheat and peanuts. Through various marketing agreements and orders prices of milk and certain horticultural products were also influenced. During the war support was extended to the prices of a considerable list of other products including hogs, soybeans, dairy products, poultry, eggs and potatoes. Under existing legislation prices of a large list of products are to be supported at 90 percent of parity for two years following the January 1 after the official ending of hostilities. All these supports are in terms of parity prices.

The use of individual prices as goals leads to difficulties. The standard may get out-of-date and lead to bad relationships among the prices of different commodities. Such is admittedly the case with the present 1910-1914 standard. Prices may be set which are too high in view of the demand and thereby tend to price a commodity out of a part of its market. This has been true of cotton. Prices set by an arbitrary standard may lead to accumulations of large stocks which hang over the market and hold down the price. Farmers are encouraged to produce too much of the over-priced products and not enough of certain under-priced products. Thus during the war the government stepped in and made special "feed payments" to dairymen in order to get enough milk even though the price of milk was above parity.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

For these reasons consideration is being given to revising the present parity standard. One school of thought desires to include the cost of labor. This would not correct the present bad relationships between prices of individual products. Others desire to set prices by administrative decision at levels which in the judgment of the responsible officials will yield satisfactory incomes to farmers and maintain proper relationships between prices of individual products. Others would bring parity down-to-date by use of average prices for the preceding ten years or some other recent period.

We believe it is impossible to avoid difficulties with individual prices as standards. We would abandon the price approach and turn to the overall income approach. We do not believe it is practical to set prices by administrative action that would not disturb the functions which prices should perform in connection with agriculture where production does not adjust to major changes in demand and fluctuates with uncontrollable weather factors.

We believe that any government price or income policy should include the following objectives:

First, to furnish farmers protection against the bad effects of low prices caused by changes in demand factors beyond their control.

Second, to permit prices of various commodities to seek levels which will balance production in line with underlying supply and demand factors and get products consumed.

Third, to encourage the high output of farm products consumers need for a high level of living for our entire population.

Fourth, to relate government payments to farmers to some measure of general economic welfare in order to avoid unbalanced relationships between agriculture and other economic groups.

A parity income plan. Various parity income plans could be developed. The present law defines parity income as one which will maintain income per head of farm population in the same position relative to the non-farm population as in 1910-1914. A possible plan would relate sales of farm products directly to national income, adjusted for changes in farm and total population.

The total sum to be paid farmers would be calculated as shown on the following page, using 1939 data.

All basic data in the following illustration are now published annually. The information needed to make individual payments could be taken from copies of income tax returns. Some minimum payment to individual farmers, such as \$20, could be set to avoid expense of administration in the case of the thousands of very small farms.

Payments would be made to individual farmers and landowners on the basis of their own sales of farm products less purchases of feed and livestock. The payment would be a *production payment*. The justification for it is that farmers continue production of needed foods and fibers in periods of depression when industry slows down. These payments would tend to offset the lower prices which farmers receive at such times through no fault of their own.

1. Cash farm income not including government payments.....	\$ 7,877,000,000
2. Farmers' purchases of feed and livestock.....	1,136,000,000
3. Line 1 minus line 2.....	6,741,000,000
4. National income not including government payments.....	\$70,708,000,000
5. Ratio of line 3 to line 4.....	.09534
6. Farm population, January 1, 1939.....	30,840,000
7. Total population, January 1, 1939.....	130,406,000
8. Ratio of line 6 to line 7.....	.23373
9. Ratio of line 5 to line 8.....	.40791
10. Ratio of .44 (an illustrative standard) to line 9.....	1.07867
11. Line 3 times line 10.....	\$ 7,271,000,000
12. Total payments (Amount that line 3 falls short of line 11).....	530,000,000
13. Percent that line 12 is of line 3. (Percent that individual's payment would be of his sales less purchases of livestock and feed)...	7.86

This plan would not encourage careless farming because the larger the sales the larger the payments to an individual as well as the larger his directly earned income would be.

Purchases of feed and livestock are deducted because these are not contributions of the individual farm and in order to avoid the possibility of loading the payments through short-held livestock. It roughly eliminates double counting of income.

How much would this plan cost? The only administrative decision needed under this plan is the choice of the ratio used in line 10 in the above example. The ratio of .44 used above was chosen solely for illustrative purposes. The history of the ratio of sales of farm products less livestock and feed purchases per head of farm population to the per capita national income is shown in Figure 1. There is no marked trend in it. It had the same level in 1910-1914, in 1924-1929, and in 1934-1938, three periods of moderate farm prosperity. It went well above this level in the two war periods, and below in three depression periods, 1921-1923, 1930-1933, and 1938-1940.

To attempt to base payments on the high wartime ratio in this index would be unwise. Special demands make farm incomes especially high in wartime. The plan is to make payments in depressions. We would suggest some average figure representative of the periods when the ratio has been of an intermediate level. Using the ratio of .44, the costs in years when payments would have been made are shown in Table 1.

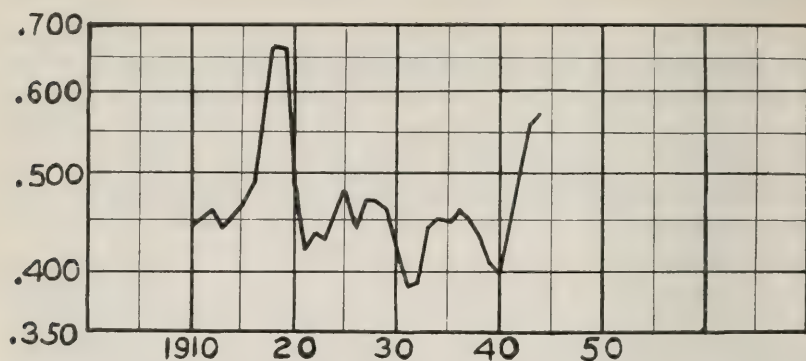


FIG. 1.—RATIO OF CASH FARM INCOME, MINUS FEED AND LIVESTOCK PURCHASED, TO NATIONAL INCOME, EXCLUDING GOVERNMENT PAYMENTS, ON A PER CAPITA BASIS. U. S., 1910-1944

An objection to this plan has been raised that incomes of all classes of farmers do not rise and fall together. Such differences are needed in order to stimulate necessary adjustments within the industry. In severe depression few groups of farmers are in favorable positions. It might be necessary to regionalize the procedure outlined above but this would present no great difficulties. This plan does not protect farmers against loss in income due to crop failure. Neither do price supports. Crop insurance is a more appropriate method to protect farmers against such misfortunes.

The advantages of this plan are:

- (1) It allows freedom in prices so that prices can perform their normal functions.

TABLE 1.—ESTIMATED PAYMENTS REQUIRED UNDER THE SUGGESTED PLAN WITH RATIO OF .44^a

Years payments were payable	1. Ratios of corrected farm sales ^b to national income on per capita basis	2. Ratio of .44 to Column 1	3. Cash farm income not including government payments less purchases of feed and livestock	4. Column 3 times Column 2	5. Column 4 less Column 3 (equals payments)
				(Millions of dollars)	
1921.....	.42087	1.04545	\$7,254	\$7,584	\$330
1922.....	.43325	1.01558	7,616	7,735	119
1923.....	.42704	1.03035	8,464	8,721	257
1930.....	.42638	1.03194	7,918	8,171	253
1931.....	.38644	1.13860	5,703	6,493	790
1932.....	.38926	1.13035	4,231	4,783	552
1938.....	.43695	1.00698	6,819	6,867	48
1939.....	.40791	1.07867	6,741	7,271	530
1940.....	.39373	1.11752	7,045	7,873	828

^a As derived in line 9 in above example.

^b As defined in heading to Column 3.

- (2) It guarantees farmers the approximate share of national income they get in normal times.
- (3) It would be anti-cyclical—paying out money when it is needed to support total income.
- (4) It would be comparatively simple to administer and involves few administrative decisions.

Anyone who desires to obtain the detailed figures for all years from 1910-1944 may get them by writing to the Department of Agricultural Economics, University of Illinois. A critical analysis of this plan together with alternative methods of determining the total payments to carry out the same general objectives will be presented in an early issue of *Illinois Farm Economics*.

L. J. NORTON and E. J. WORKING

HOW RICH IN LAND ARE ILLINOIS FARMERS?

Acres per farm worker must be either good or numerous or both to make a state, a region, or a nation stand out in the world picture. How well are farm workers in the various farming-type areas of Illinois blessed by comparison with farm workers in other areas?

Thought turns naturally to land values, or to crop yields, and livestock numbers and returns. Efforts for international comparisons in these respects have fallen short. Land values are in money units that stand in various relations to American money, and all money fluctuates in power to buy goods and real estate. Speculation is at one level at one time and place and quite different in another time and place. Land is not always valued from the point of view of earnings on capital used. Buildings and other improvements have irregular effects on value. Urban, mineral, and other factors are often present in varying degrees. Annual crop yield and annual livestock figures for "round-the-world" comparisons are handicapped by differences in species and varieties grown and by differences in extent to which irrigation or other special ways of farming are used.

The present study has its pivot on plowland. The practice of farmers in various countries in plowing the land, leaving it in permanent pasture, or in woodland is accepted as prime evidence of the way the land lends itself to intensive or extensive uses by men. Plowland is counted as 100; meadowland as 40; permanent pasture as 20; woodland as $7\frac{1}{2}$ percent; and garden land as 300 percent. All land in agriculture and forestry is either plowland or reduced to plowland for the sake of comparison. For each country there is a total P.E. area (acres of plowland plus computed equivalent acres of farmland other than plowland). Also for each country there is a P.E. area per farm-active person, or, more briefly, per "user."¹

¹ For credit to Polish economists, see Population and Land-Resource Relationships, *Land Policy Review*, Winter, 1944, by the senior author.

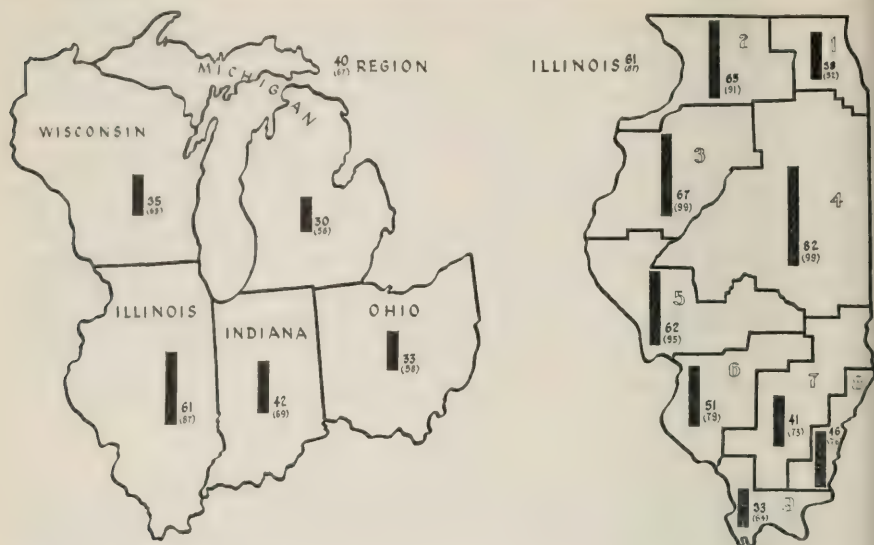


FIG. 1.—ACRES PER USER OF FARM AND FOREST LAND, ADJUSTED FOR USES MADE OF LAND, EAST NORTH CENTRAL DIVISION, BY STATES, AND ILLINOIS, FARMING-TYPE AREAS, 1940

Where all farm and forest land is reduced to a plowland basis, acres per user become more comparable than when no allowance is made for the more intensive use of horticultural land or the more extensive uses given to forest, permanent pasture and meadowland. Weighted acres per user ranged from 61 in Illinois to 30 in Michigan. See text for the weights given land in hay, pasture, forest and other uses. Note the unweighted acreages per user shown in parenthesis.

The cash-grain farming-type area of East Central Illinois has 82 acres per user, which is 30 percent above the state average and over 80 percent above the national average. (See table in text for identification of the nine Illinois farming-type areas.) Even where the lowest figures are shown, namely for the Southern Illinois mixed farming and fruit and vegetable areas, weighted acres per user are still double those of the South Atlantic and East South Central divisions shown in Figure 2.

The term "users" applied here in connection with farm and forest land includes all persons regularly occupied in working the land. Use of the land rather than of its products is the main point. The younger age limit, 14 years in the United States census of 1940, is not applied in all countries but there is usually a limit not greatly different. Persons in rural homemaking often engage in crop and livestock operations to some extent, and there are other part-time workers whose contribution is large, but occupational statistics do not uniformly account for them. Those mainly in farm and forest land use who work part-time in occupations of other types are of varying numbers, usually small.

By making use of the figures given by the countries that have the more acceptable sources some interesting comparisons are possible in spite of

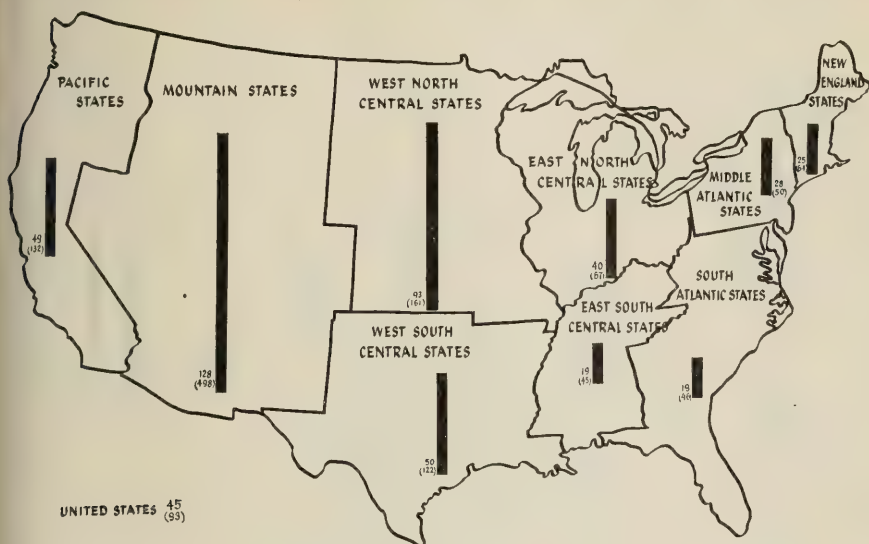


FIG. 2.—ACRES PER USER OF FARM AND FOREST LAND, ADJUSTED FOR USES MADE OF LAND, UNITED STATES, BY DIVISIONS, 1940

Applying the plowland basis referred to under Figure 1 and explained in the text, the amount of land per user in the Rocky Mountain division is higher than in any other division. Acres per user in the Rocky Mountain division, when weighted for use, became 128 instead of 498 (the unweighted figure shown in parenthesis), and, instead of nearly a dozen times the number of acres per user in the East South Central and South Atlantic divisions, it is only slightly over six times as large. In Rocky Mountain areas in which the land is soundly grazed only in brief seasons and with other limitations, the rating plan used here still gives too great weight to much of the land in pastures. Divisions east of the Mississippi River have fewer acres of farm and forest resources per user than in any western division.

the variety of dates, not all too recent, to which the figures apply. Against a background of 30 countries, and nine regional divisions of our own country, one places the 1940 facts for Illinois and its nine farming-type areas (Figures 1 to 3).

P.E. acres per user. The area of plowland and equivalent, or the P.E. area per user, in 1940 was 61 acres for Illinois as a whole, and ranges from 33 to 82 acres in the farming-type areas of the state. Of the foreign countries that have most similarities to ours in P.E. area per user, one notes Canada, 58 acres; New Zealand, 52 acres; and Australia, 42 acres. Among 26 other foreign countries none has more P.E. acres per user than are found in the fruit and vegetable farming-type area of southern Illinois, the Illinois area with fewest acres per user.

Among the states east of the Mississippi River, Illinois has a plowland acreage per user that is outstanding. West of the Mississippi River, how-



FIG. 3.—ACRES PER USER OF FARM AND FOREST LAND, ADJUSTED FOR USES MADE OF LAND, 22 EUROPEAN AND 8 OTHER COUNTRIES, RECENT DATES

Countries of smallest acreages per user, such as Japan and Yugoslavia, stand in contrast with Canada, New Zealand, United States and Australia, countries in which the acreage per user is 20 or more times as large. Of four Southern Hemisphere countries shown, Uruguay, 6 acres, had a small area per user compared with Chile, 27 acres. Denmark, with 13 acres per user, was the only country adjacent to Germany that surpassed the latter on that basis.

When one compares the unweighted figures on acreage per user shown in parenthesis with the weighted figures, he is impressed with the extent to which the low-use land in some countries has inflated the crude figures prevalent in popular usage.

Where acreages per user are small, there may be acute need for industrialization or migration to opportunities elsewhere.

ever, two entire geographic regions surpass Illinois in P.E. acres per user, namely the West North Central division, 93 acres, and the Rocky Mountain division, 128 acres. A great deal of thin grazing land in west-central areas and in the Rocky Mountains is doubtless still overrated in the present formula. In two divisions, the P.E. area per user was only one-third as high as in Illinois, namely, the East South Central and South Atlantic. Even so, an average user in the southern states has plowland (or equivalent) ten times that of the average user in Japan or Yugoslavia.

An average Illinois farm worker has a third more weighted acreage than a farm worker in the United States and slightly more than in Canada.



FIG. 4.—ACRES OF FARM AND FOREST LAND, ADJUSTED FOR USES MADE OF LAND, AS PERCENT OF TOTAL AREA, 22 EUROPEAN AND 8 OTHER COUNTRIES, RECENT DATES

Within Europe the proportion of the total land that is in farm and forest use varies widely, notably between Luxembourg, 93 percent, and Norway, 28 percent. There is also wide difference in the intensity with which farm and forest land is used, as shown by comparing the weighted with the unweighted figures (the latter in parenthesis). In Finland, with 90 percent of the land in forest and farm use, the plowland rating is only 14 percent; this results from the large amount of land given only the most extensive uses. In Denmark, on the other hand, 86 percent of the land is in farms and forests, and the intensity of use is such that the plowland rating is 70 percent.

Apart from Europe, one notes differences between Japan and Australia both in proportions of land in farms and forests and in the average intensity of use. The differences shown between these two countries are probably not surpassed anywhere in the world, when entire countries are considered.

P.E. acres as percent of total land acreage. How adaptable is the land for agriculture and for forestry uses? To rate a country, state or farming-type area on this basis is worth trying. Results are shown in Figure 4.

For Illinois, where we have just noted that there were 61 P.E. acres per user, there shows up another 61, this time 61 percent. For each 100 acres of all land in Illinois the acres that were actual plowland, or plowland by computation from other farm and forest uses, totaled 61.

On this basis a country or part of a country rates high if it has much land that can be intensively used and little that has no agricultural use. The farming-type areas of Illinois rate high. The highest-rating Illinois area surpasses Denmark and Germany. Our lowest rating area surpasses thirteen of the foreign countries included in this study. Opposite eight Illinois areas are placed the foreign countries that appear to be most comparable in the ratio of P.E. acres to total area.

Designation of Illinois farm type areas	Use-weighted rating (percent P.E. acres to total)	Foreign countries in which the use-weighted rating (percentage shown in parentheses) is about the same as in Illinois area
4 (cash grain)	76	Denmark (70)
2 (mixed livestock)	65	Germany (66); Hungary (65)
3 (livestock and grain)	61	*
5 (general farming)	58	Italy (58)
6 (wheat, dairy, and poultry)	54	Lithuania (54); Spain (54); Poland (53)
1 (dairy and truck)	50	France (52); Belgium (51); Rumania (51)
8 (grain and livestock)	50	Luxembourg (49)
7 (mixed farming)	46	Czechoslovakia (47); Latvia (39)
9 (fruit and vegetable)	37	Netherlands (38); Yugoslavia (38); Japan (37)
State as a whole	61	

*No example available.

Land in Illinois lends itself to an average density of use between that which applies to the average of all land in Italy and the average of all land in Hungary. This density of usability is over twice that of all land in the United States, over three times that of Russia, and over four times that of New Zealand, Finland, Sweden and Switzerland.

Some questions. In estimating mechanical power, one not only counts engines and motors but allows for their varying horsepower. Rating land power, with an acre of average plowland as the unit, is a move in the same direction. It still leaves much to be desired. Plowland acres in an area that was originally timbered are seldom likely to attain as large yields as plowland originally in blue-stem prairie grass. Most farms need some plowland and some pastureland and even where all of the land might better be one or the other, some land too poor to plow or too good to pasture will be plowed or pastured. Subsoil and other conditions work marked differences between high-grade and low-grade prairie soils. Imperfect as is a method that counts all plowland the same or all pasture the same, counting all farm and forest land as the same is more so.

Weighting land for uses made of it is like raising the magnifying

power of a field glass. Some things can be seen in better perspective and questions are submitted in new forms.

Where land is rich, does plowland (and equivalent) per user also run high? The 30-country analysis suggests no as the answer to this question. The P.E. acres per user are highest in Canada, Australia and New Zealand where much of the land in farm and forest uses is not suited to intensive operations. Likewise in the United States the P.E. acreage per user is highest in the Rocky Mountain region where extensive operations predominate. In this country, too, the P.E. acreage per user is lowest in East South Central and South Atlantic states where the ratio of P.E. land to total area is near the national average. Countries in Europe, having highest ratios of P.E. to total land, have P.E. averages per user that are high as Europe goes, but not high by comparison with Canada, United States, Australia, and New Zealand, or even by comparison with Mexico, and Chile. The average farmer in Illinois has something that is relatively rare around the world, namely, acres that are both rich and numerous.

Are countries of little rural mechanization and those of much rural mechanization likely to become more alike? It appears that one reason why New World countries have applied so many labor-saving devices on their farms and in their forests has been the usual shortness and dearness of their labor supply. Labor-saving devices have come more slowly in some older countries. This is partly because of the cheapness of their labor. Whereas women have increased the labor force in crop and livestock operations in cheap-labor countries, they have augmented it less, except in the war period, in the dear-labor countries.

In countries of cheapest labor, a considerable amount of land will be spaded or worked by knee labor. Such land in dear-labor countries would be plowed with power equipment. In dear-labor countries some medium- or even low-grade land will be plowed, because machine operations are relatively cheap, but similar land in a cheap-labor country remains more freely in pasture or woodland uses.

Some cheap-labor countries have so much subdivision of ownership and so many small areas set aside, that even where topography is suited to mechanical operations it is difficult to make fields large enough. Efforts in Russia to get fields that were long and broad enough for large-scale machinery involved bloodshed and exile. High rates of population growth are more likely to be found in regions where farm area per user is already small than where it is large.

It is not easy for cheap-labor countries to make their labor dear. It is not known whether the near future will bring cheaper electric or other power for driving machinery in farm and forest in countries hitherto backward in using it.

Applications of new power from cheap sources may have effects in cheap-labor countries more revolutionary than in dear-labor countries, but there is little in recent developments to support that view.

Are rural workers in cheap-labor countries or cheap-labor regions of New World countries likely to move to dear-labor countries or to dear-labor sections of their own countries? Resistance to movement are numerous. This is not merely because of immigration barriers. Ties to community and family are strong. Education is often supported less in cheap-labor areas than in those of dear labor, and knowledge of opportunities existing elsewhere is not evenly spread.

Are rural workers in dear-labor areas more likely to be fully occupied in gainful activity than those in cheap-labor areas? Within Illinois some light on this question is afforded by a wartime study. The State Selective Service Board reported in 1943 that there was a marked difference in the number of productive work units (then called war units) per registrant in the several farming-type areas. In the Chicago dairy and truck area the productive work units per man averaged 30; in the south central mixed farming area, 27; in the western livestock and grain area, 26; in the east central grain area, 24; and in the southern mixed farming area, 19. Of the II-C and III-C registrants in the dairy area only 13 percent then fell below the 18 productive work unit objective, but in the southern mixed farming area 50 percent were below. This throws no light upon the willingness of registrants in various areas to be fully occupied, but the farms themselves differed in the total number of productive work units that any typical farm-active person could be expected to apply to them in a year. Where farms are smaller and where soils are generally less productive (as in southern Illinois), registrants on a larger proportion of farms are unable to attain as high an average number of productive work units per farm and per registrant as in other Illinois areas.

The Selective Service Board analysis in Illinois was confined to farms on which there were males 18 to 38 years of age and, therefore, does not present a picture for all farms in the areas studied.

Mechanization in dairy areas has doubtless increased the number of productive work units per man. In grain areas seasonal peaks are high and seasonal valleys are low even with mechanical equipment fully applied, work units per man being neither highest nor lowest.

In cheap-labor countries the period between the two world wars was marked by unemployment in rural areas between rush seasons of the year. A return of this condition is probable. The rebuilding of cities in war-torn Europe and Asia may draw some rural laborers to town but probably not many.

Rural workers in cheap-labor countries are likely to be less fully employed than those in dear-labor countries.

The gap between the highly mechanized and the hand-labor countries has been wide and the prospect is that it will not be narrowed. It may become wider.

In sum, the plowland and equivalent area per farm-active person in Illinois has been high and may be expected to remain high relative to Eastern United States and to foreign countries for which we have good figures. Farm type areas in which grain farming predominates in Illinois are likely to be operated with even less manpower and more machinery. Where land is so rich in fertility and where the users are supplied with so many acres, the power of the individual to grow products becomes phenomenal. In World War II, as in World War I, and as far back as the Civil War, farm people using machinery in the prairie province of Illinois and surrounding areas produced large amounts of products required for victory. Factories, whose products were also rushed directly to battlefields and whose buildings have flown banners with the Army-Navy E, have a counterpart in our agriculture.

C. L. STEWART and O. B. BROWN

EFFECT OF CHANGES IN SEASONAL PRICES ON SEASONAL MILK PRODUCTION IN THE CHICAGO AND ST. LOUIS MILKSHEDS

The acute shortages of milk during September, October, and November 1945, in most markets in the United States, may be attributed primarily to: (1) Strong demand for milk resulting from high consumer incomes; (2) removal of government restrictions on the sale of cream; and (3) in some milksheds relatively higher prices paid producers in the lost-cost spring and early summer months caused relatively lower production in September, October, and November.

Since federal milk subsidies are scheduled to be discontinued by March or June 1946, prices paid to producers by dealers in most markets will be subject to review and change within the next few months. While these changes are in progress, careful consideration should be given to adjusting seasonal prices to encourage seasonal production of milk more nearly in line with the grade A needs of each market.

Seasonality has increased in Chicago market. The seasonality of milk production in the Chicago milkshed has been widening in recent years and this has intensified the shortages in September, October and November. In June 1945 production in this milkshed averaged 48 percent higher than in October 1945, as compared with 35 percent in both 1940 and 1941 (Table 1).

TABLE 1.—INDEXES OF THE MONTHLY VARIATION IN THE PRODUCTION OF MILK IN THE CHICAGO AND ST. LOUIS MILKSHEDS, 1940-1945

Percent: October of each year = 100

	1940	1941	1942	1943	1944	1945
CHICAGO ^a						
January.....	104	109	114	118	110	114
February.....	110	115	121	126	118	123
March.....	116	120	127	132	124	130
April.....	121	126	133	138	131	137
May.....	124	139	146	146	140	145
June.....	135	135	140	150	138	148
July.....	116	118	121	127	119	128
August.....	105	111	111	114	106	113
September.....	103	104	103	107	101	104
October.....	100	100	100	100	100	100
November.....	98	98	97	100	102	99
December.....	108	105	107	110	111	...
St. Louis ^b						
January.....	112	113	128	116	115	126
February.....	119	119	134	123	121	132
March.....	121	122	137	127	124	136
April.....	127	128	145	131	129	145
May.....	140	136	155	135	139	151
June.....	127	119	135	123	123	138
July.....	109	112	128	116	113	126
August.....	105	107	126	112	109	117
September.....	107	106	110	105	106	105
October.....	100	100	100	100	100	100
November.....	101	98	103	103	102	101
December.....	110	105	129	112	110	...

^a From the Chicago Federal Milk Market Administration.^b From the St. Louis Federal Milk Market Administration.

This wider seasonality in production may be attributed in part to the narrowing of the difference between the blend prices (including government subsidies) paid producers in the low-volume and high-volume months. From 1940 to 1942 the blend price in September, October, and November averaged 31 percent higher than in May of these years as compared with 15 percent in 1943-44 (Table 2). In 1945 the blend price from September to November averaged 16 percent more than in May. This decrease in seasonality of blend prices resulted from: (1) Increasing the Class I premium from 50 to 70 cents for May and June beginning with 1943, and (2) a Class III price which in recent years has been relatively uniform throughout the year; (3) failure to adjust seasonality of federal subsidies sufficiently as between the different seasons of the year.

Production in St. Louis does not coincide with seasonal needs. As in the Chicago area, seasonality of production in the St. Louis milkshed does not coincide with the seasonal needs of the market. Unlike the Chicago milkshed, the seasonality of production in the St. Louis milkshed has not changed materially in recent years though it has varied from year to year. For example, in both 1942 and 1945 the milk production in the St. Louis area was more than 50 percent higher in May than in October (Table 1).

TABLE 2.—INDEXES OF THE MONTHLY DIFFERENCES IN BLEND PRICES PAID PRODUCERS, CHICAGO AND ST. LOUIS, 1940-1945

Percent: May each year = 100

	1940	1941	1942	1943	1944	1945
CHICAGO ^a						
January.....	121	91	116	102	105	116
February.....	116	91	110	100	105	116
March.....	111	92	106	100	108	115
April.....	110	97	106	100	105	113
May.....	100	100	100	100	100	100
June.....	102	102	98	100	100	101
July.....	116	113	106	104	103	109
August.....	118	116	114	106	104	111
September.....	120	133	121	107	114	111
October.....	129	137	130	119 ^c	114	118
November.....	138	140	134	120	114	119
December.....	133	138	137	119	113	...
St. LOUIS ^b						
January.....	112	95	120	103	109	120
February.....	110	95	115	103	108	120
March.....	108	92	110	103	112	119
April.....	106	96	102	100	106	111
May.....	100	100	100	100	100	100
June.....	104	104	100	102	102	101
July.....	109	112	109	111	111	117
August.....	110	114	116	112	112	118
September.....	112	115	125	113	125	117
October.....	116	116	141	126 ^c	126	123
November.....	117	116	141	127	125	114
December.....	131	134	137	121	116	...

^a From the Chicago Federal Milk Market Administration.^b From the St. Louis Federal Milk Market Administration.^c Blend prices include federal subsidy beginning October, 1943.

In contrast, the May production of 1943 and 1944, which averaged 37 percent higher than that for October, was nearly the same (38 percent) as the proportion that the May production of 1940 and 1941 exceeded that for October.

Changes in weather conditions in recent years have been more responsible for seasonal variations in production than changes in prices. In fact there was a wider seasonal range in blend prices received by producers from 1942 to 1945 than those received in 1940 (Table 2).

Seasonal premiums should be reviewed in new orders. It is desirable to have enough milk to meet the grade A needs of the market throughout the year and to keep the volume of grade A milk that has to be manufactured to a minimum. With these facts in mind as the federal orders in the Chicago and St. Louis markets are revised, *seasonal premiums above the condensery price should be established at levels which will tend to encourage a production of milk more nearly in line with the grade A needs of these markets.* With present milk prices much higher than in 1939 and 1940, it will be necessary that the range in seasonal premiums for Class I milk above the condensery price (or butter plus skim values) be materially wider than the range which did prevail in the prewar years.

R. W. BARTLETT

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ¹	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	117	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	188	245	199
1943.....	103	123	166	127	251	243	191	239	330	239
1944.....	104	124	168	132	265	249	189	266	334	236
1944 Oct.....	104	123	170	133	262	295	222	272	330	232
Nov.....	104	124	169	134	267	314	234	272	327	232
Dec.....	105	126	170	134	264	270	201	277	332	232
1945 Jan.....	105	126	173	134	278	239	178	274	330	234
Feb.....	105	127	174	134	312	226	169	274	329	236
Mar.....	105	127	174	135	294	249	184	276	326	235
Apr.....	106	129	174	135	296	228	169	276	317	231
May.....	106	130	174	135	293	242	179	274	307	225
June.....	106	130	175	135	287	227	168	274	302	220
July.....	106	129	174	135	282	208	154	...	286	210
Aug.....	106	127	174	135	274	201	140	...	258	187
Sept.....	105 ¹¹	124	171	136	256	192	141	...	216	169
Oct.....	106 ¹¹	127 ¹¹	171	137	262	...	...	...	214	163

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Dec. 1944	Current months		
	1935-39	1943	1944		Oct.	Nov.	Dec.
Corn, bu.....	\$.66	\$.98	\$ 1.07	\$ 1.04	\$ 1.08	\$ 1.06	\$ 1.06
Oats, bu.....	.31	.66	.74	.70	.64	.71	.73
Wheat, bu.....	.86	1.43	1.54	1.57	1.62	1.64	1.64
Barley, bu.....	.62	1.00	1.16	1.06	1.12	1.13	1.13
Soybeans, bu.....	.90	1.68	1.91	2.05	2.05	2.10	2.10
Hogs, cwt.....	8.52	14.07	13.47	13.70	14.30	14.30	14.30
Beef cattle, cwt.....	7.88	13.46	13.34	13.20	12.20	12.00	12.00
Lamb, cwt.....	8.36	13.57	13.52	13.20	13.30	13.20	13.30
Milk cows, head.....	58.00	129.25	124.50	119.00	128.00	128.00	128.00
Veal calves, cwt.....	8.66	14.40	13.88	13.40	14.00	14.10	14.50
Sheep, cwt.....	3.58	6.58	5.67	5.00	5.60	5.80	6.30
Butterfat, lb.....	.27	.49	.49	.50	.48	.48	.48
Milk, cwt.....	1.68	2.97	3.02	3.15	3.00	3.05	3.05
Eggs, doz.....	.19	.36	.31	.39	.37	.42	.43
Chickens, lb.....	.15	.24	.24	.24	.22	.22	.23
Wool, lb.....	.25	.42	.42	.44	.44	.46	.45
Apples, bu.....	1.08	2.49	3.11	3.10	2.75	3.50	4.00
Hay, ton.....	9.39	15.11	17.65	18.40	16.30	16.00	16.60
Potatoes, bu.....	.91	1.92	1.83	1.85	1.50	1.55	1.70

¹⁻¹²For sources of data in tables see September-October issue.

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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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THE EUROPEAN FOOD SITUATION

The general situation. Why is food so scarce in Europe? Prior to the war Europe normally imported about 20 percent of its food — either directly as human food or indirectly as livestock feed. Home food production in continental Europe in 1945-46 is about 25 percent short of prewar production. There are two reasons: First, the worst drouth in 20 years throughout the Mediterranean Basin in North Africa and Southern Europe from Portugal through Rumania during the past summer resulted in virtual crop failure in some areas and a greatly reduced harvest in every country in that region and, second, the war caused an interruption of normal production. Countries of northern Europe, which normally produce yields of bread grains twice as large per acre as those of the United States fell short in yields of various crops by 25 to 50 percent in different countries. Lack of nitrate, phosphate and potassium fertilizers, not available during war years, accounted for much of this reduction. The flooding of land and land mines kept some land out of production — which, for example, amounted to about 11 percent of the area in Holland. In some areas, labor, power and farm machinery, had all three been destroyed or taken away. Finally, livestock numbers in continental Europe have been drastically reduced. There are perhaps one-fourth fewer milk cows than before the war, half as many hogs and a still smaller proportion of poultry. Food supplies and agriculture production are especially serious problems in wartime in every country that falls far short of producing enough food to live on.

Conditions in Great Britain. In Great Britain in the early part of the war, for example, adjustments in production were carefully planned. They approached the matter from the standpoint of producing as much of the necessary food for survival as possible in the event of a long war

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

ILLINOIS FARM ECONOMICS
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and the shutting off of imports by war activity at sea. Before the war Great Britain was producing about 35 percent of her total food supply. A British subject expressed it by saying England was a country of "week enders;" that is, they produced only enough food to carry them over the end of the week. The supply of food produced during the war was increased to 70 percent of the total consumption in 1945, but the quality of the diet suffered materially. The increased production of food was accomplished through growing more wheat, potatoes and vegetables, but the numbers of pigs and poultry were reduced very materially because both pigs and poultry consumed feed that could be used directly as food. The number of dairy cows was increased during the war, but practically no oil cake or grain feed was fed to cattle. It was estimated that the dairymen could maintain 75 percent of full milk production without grain by using roots and grass. This was a most fortunate undertaking as it made it possible to supply each child under five with a pint of milk a day as well as to nursing and expectant mothers. The children in Great Britain appeared to be in better physical condition than those in large cities on the Continent.

Considerable was said in the press about the power of the government to take over the land from the operator and use it to the best advantage of the country. This was a threat that was not frequently exercised because it was not difficult to get most producers to follow the production dictates of the government.

The British food supply is not so bad as far as the calorie content is concerned, but it is made up largely of cereals, potatoes, and vegetables. The diet continued throughout the six years of war has had a serious effect upon the whole population — the British are tired and tired looking. Some people in our country have thought that the British food supply was much more ample during the war than was the case.

During the past year the ration in England allowed a person two ounces of butter and four ounces of margarine a week. The meat ration consisted of 24 cents worth of meat a week and two additional ounces of bacon. The price of meat was quite comparable to prices in this country so the 24 cents worth of meat does not go far. The ration included a half-pound of sugar and three ounces of cheese a week, one egg a month for a mature person and one egg a week per child. The only items of food not rationed in Great Britain were bread, potatoes, fresh vegetables and fruits, and fish, but fruits in particular were available in very limited quantities. During the past summer and fall peaches of the size we frequently have bought for \$3 a bushel were selling for \$2 a peach. Tokay grapes sold for from \$2 to \$4 a pound. While fish was unrationed, people generally

complained of waiting in a queue for an hour only to find the supply exhausted before they reached the counter.

Conditions in Belgium. Hunger and associated suffering are the keys to many internal difficulties, the disintegration of nations, and to conflict between nations. One can see evidence of this in Europe. At Brussels last June army officials complained that the Belgians were not good workers, that hundreds were sent to the docks weekly but many of them were soon discharged. These people were reported to be released prisoners of war and displaced laborers from Germany. At the same time, however, when some of them were afforded the privilege of good food at a central mess, they improved rapidly as workers. Four months later at the same point I asked a prominent official what economic progress Belgium was making. He replied enthusiastically, "Belgium has turned the corner." Then he stated, "Last spring we could not understand our people. They seemed to think the government owed them a living because they had suffered so much during the war, especially the returned ex-prisoners of war and the enforced laborers who had recently returned from Germany. Now marked progress has been made and I can say we are on the way to recovery." Then he related the extent to which the various industries were approaching prewar production. Finally, I asked what part the food supply had played in recovery. He said, "I believe it is due almost entirely to an improved food supply although the amount is still low." While the Belgian food supply was only about three-fourths of the normal consumption, the diet was quite well balanced because of imported food. The imports were made possible because of a favorable balance due Belgium at the conclusion of lend lease. Also, the diet included more fresh fruits, tomatoes, and other vegetables than usual. Countries which normally imported these products from Belgium did not have the credit needed to purchase them this year so they were consumed in Belgium. This appeared to be a demonstration, on a nation-wide basis, of the importance of a well-balanced food supply including fruit and protein foods, to both economic recovery and political stability.

Summary for Europe. Less food is available in Europe when more than normal quantities are needed. Nutritionists are agreed that somewhere near half of the normal consumption of a full diet might maintain a person and prevent malnutrition if other conditions remained normal, but the other conditions have not remained normal. As a result of several years of undernourishment and lack of adequate fuel and shelter, two-thirds of a normal diet may give no more protection to health than half a diet under normal conditions. If errors have been made in calculating the

food needs in Europe. I personally feel that it has been due mainly to not fully recognizing this situation. Also in some areas the critical foods, especially fats and proteins of animal origin, and fruits, are much less readily available than grains and potatoes.

A principal condition that needs to be recognized is that food produced in Europe cannot be equally distributed between people within a country or between countries in proportion to population numbers. Many of the European countries have a large percentage of their people on farms. Eleven continental countries representing most of the enemy-occupied territory and having a population of about 10 percent more than the United States or near 150,000,000 people, have approximately 60,000,000 people on farms and 90,000,000 in cities and towns. It is these people living in the largest cities who face the most difficult times during the winter in any country.

With the exception of a few of the countries of Europe, from two-thirds to nine-tenths of the farms are less than 5 hectares or 12½ acres in size. Normally the farmer produces most of the food for his family. What little surplus remains is sold or exchanged for the limited supplies he needs to buy. Supplies needed by farmers and normally obtained in the market are not now available and the farmer in many countries does not have confidence in the currency of his own country. Under these conditions, especially, the man who produces food will tend to satisfy his own hunger and it cannot be rationed away from him. While a number of countries are requiring farmers to deliver definite amounts of meat, based upon animals kept on the farm, such products as milk and eggs in particular do not lend themselves to close rationing.

How do these European food and agricultural facts add up? They mean that if the food consumption of farmers in different countries is successfully reduced to 80 to 90 percent of their normal consumption, the nonfarm people will have about two-fifths of the prewar consumption for nonfarm people from home-produced food. In Belgium, Holland, and Norway the people not living on farms would receive less than one-third of the food they consumed before the war. In France the amount would be two-fifths. If the normal amounts of food are imported, the nonfarm people might receive two-thirds of their prewar consumption in continental Europe as a whole. This amount would hardly amount to more than a maintenance diet under the present conditions—clothing, fuel, and shelter—especially for people who have been undernourished for six years. Even if equitably distributed this amount of food is not adequate to give these people the strength they need for reconstruction following the greatest destruction of capital goods the world has ever experienced. As the winter passes the situation in many parts of Europe is becoming

more critical with Germany the most critical point, and deliveries of food have fallen far short of expectations in most countries and especially in southern Europe where conditions could become progressively worse.

It is difficult to keep in mind the whole picture of the European needs. It may help one to understand the size of the food problem in Europe, to recall that there are 400,000,000 people in Europe, including Great Britain, or about three times as many people as in the United States. They are crowded into an area two-thirds the size of our country. At first thought some people are inclined to feel that the passage of the appropriation to support UNRRA will take care of European needs. That is not the case since UNRRA support goes only to the countries with no foreign credit, including Italy, Albania, Greece, Yugoslavia, Austria, Czechoslovakia, Poland, the Ukraine, and White Russia. The countries of northwestern Europe are not included in this list. If food can be had, some of these countries will use part of their limited capital to buy more food than had been allotted to them at this date. With the amount of livestock left in Europe, there is need for two to four million tons of livestock feed from now until next harvest. This much is needed to fully utilize the livestock. It does not seem likely that half of these feed needs will be met. There is a demand for 14 million tons of grain, which would be equivalent to nearly 500 million bushels of wheat. Half that amount is available from Australia, Canada, and Argentina. This country could meet the remainder of the needs if we cut our carryover of wheat somewhat below 200 million bushels. That would be the least we have carried over for some time. There is need of 400,000 tons of cheese, canned milk, and dried, whole and skimmilk, and nearly half that amount of eggs; 1,700,000 tons of meat, about three-fourths of which could be secured from Argentina, Denmark, and the British Dominions. This country could supply the remainder and still have a domestic consumption of 150 pounds per capita. Likewise, the urgent need for fats and oils might be met, part of it from this country, if we were willing to curtail our consumption to about that of our rationing days. In speaking of northwestern Europe it should be pointed out that the declines in the production of food products below prewar levels in 1945 were about as follows: Potatoes, 20 percent; milk, 25 percent; grain, 33 percent; meat, 40 percent; sugar, 45 percent; and fats, 60 percent. Add to this the fact that these countries normally imported about 20 percent of their food supply and it gives a rough idea of the magnitude of their needs.

From the civilian point of view, the war in Europe and in Asia as well, will not be over until the 1946 crop is harvested, if then.

H. C. M. CASE

FARM PLANS FOR PEACETIME PRODUCTION¹

Land use adjustments are needed. There are approximately 24,883,000 acres of cropland in Illinois. This land has been classified roughly as follows:

TABLE 1. — ILLINOIS CROPLAND CLASSIFICATION^a

<i>According to Productivity</i>	<i>Percent</i>	<i>According to Slope</i>	<i>Percent</i>
High productivity	29	Level (0 to 2% slope).....	46
Moderate productivity.....	52	Bottomland.....	9
Low productivity.....	19	Sloping (2 to 7%).....	37
		Sloping (7% and over).....	8

^a Based on Production Adjustment Study of Illinois Agriculture, June 1942.

If we are to have a permanent and prosperous agriculture, we must protect our remaining soil from erosion and replenish the fertility removed by excessive cropping of the past years.

An indication of the land use adjustments needed can be seen from the cropping patterns of the past compared to the recommended.

TABLE 2. — ILLINOIS LAND USE — PRESENT AND RECOMMENDED^a

<i>Crop</i>	<i>1943-45</i>	<i>Recommended long-time use</i>
	(Percent of tillable land)	
Corn and soybeans.....	55	43
Small grains.....	21	23
Hay and rotation pasture (grasses and legumes).....	19	30
Idle, failure or fallow.....	5	4
	100	100

^a Based on Production Adjustment Study of Illinois Agriculture, AE 2331, July 1945.

Briefly, we need to grow a larger acreage of legumes and grasses and cut down on our acreage of corn and soybeans. On an average Illinois farm of 185 crop acres, this adjustment would mean 20 acres more legumes and grasses and 22 acres less corn and soybeans. In the long run, this means larger production in terms of bushels of corn and soybeans than if we continue with the present acreage of these soil-depleting crops.

Soil and water conservation practices are needed. To correct present mineral deficiencies and to provide adequate erosion control, Illinois farms need the following:

¹ Presented at Farm and Home Week, College of Agriculture, University of Illinois, February 14, 1946. Based on cooperative studies by the Agricultural Economics Department, University of Illinois, College of Agriculture and Economic Research Section of the Soil Conservation Service, U. S. Department of Agriculture, E. L. Sauer, Project Supervisor.

TABLE 3.—ESTIMATED PRESENT CONSERVATION NEEDS OF ILLINOIS FARMS—SELECTED ITEMS^a

Limestone.....	50.0	million tons
Phosphate (rock or its equivalent).....	12.0	million tons
Potash (annual needs).....	.277	million tons
Contour farming.....	5.0	million acres
Terracing.....	3.0	million acres
Strip cropping.....	1.50	million acres
Grass waterways.....	.25	million acres
Tile drainage.....	2.10	million acres
Open ditch drainage.....	1.80	million acres
Tree planting.....	.50	million acres

^a Based on Production Adjustment Study of Illinois Agriculture, AE2331, July 1945.

In addition to the above, pasture improvement and renovation is needed on about three million acres of non-crop land. These essentials represent some of the major conservation practices needed but, by no means, do they cover total Illinois needs.

Farmers' opinions regarding peacetime production. Soybeans is one of the key crops in planning land use adjustments in Illinois. Acreage and production of soybeans were greatly expanded during the wartime emergency. The expansion came largely from land normally in hay and pasture and, to some extent, small grains. With a view to obtaining information on farmers' plans relative to the soybean crop in the years ahead, the Illinois Agricultural Experiment Station and Extension Service and the Bureau of Agricultural Economics and Soil Conservation Service, United States Department of Agriculture, held meetings in the Fall of 1945 with representative farmers in four Illinois counties. These farmers' opinions with respect to future land use are summarized in Table 4.

In setting up an "ideal" rotation or land-use program, the farmers at these meetings recognized the need for more legumes and grasses in their rotations. However, they doubted the general achievement of an "ideal" rotation for soil maintenance. Principal barriers to good land use as indicated by farmers were: (1) lack of knowledge or "know-how" by many farmers, (2) insecure and short-term tenure, (3) short-sighted landlords and tenants, (4) poor landlord-tenant relationships and (5) inadequate capital and financing.

Most farmers at these meetings agreed on the desirability to reduce acreage of intertilled crops below wartime levels but to maintain present acreage of corn. Our discussion brought out that soybeans do not always fit well into previously established cropping systems and the crop loosens the soil more than corn, thereby it is of greater erosive nature.

These farmers and many others are thinking of reducing soybean acreage and maintaining the present acreage of corn. It is my opinion that in the long run we will be ahead economically and in conservation if we

TABLE 4. — LAND USE, ACTUAL AND FUTURE — ACRES PER FARM
ON A "TYPICAL FARM"

County and land use	Actual 1943- 1945	Ideal for soil maintenance	Future	
			Expected with corn and soybean prices at:	
			Parity relationship	1945 rela- tionship
<i>Livingston County</i>				
Size of farm — acres.....	200	200	200	200
Corn.....	80	65	76	68
Soybeans.....	23	20	26	34
Small grains.....	45	42	33	34
Hay and rotation pasture.....	23	42	34	33
Total cropland.....	169	169	169	169
<i>Clay County</i>				
Size of farm — acres.....	160	160	160	160
Corn.....	30	25	30	15
Soybeans.....	12	25	25	35
Small grains.....	10	13	13	13
Hay and rotation pasture.....	60	72	62	67
Idle cropland.....	24	1	6	6
Total cropland.....	136	136	136	136
<i>Macon County</i>				
Size of farm — acres.....	240	240	240	240
Corn.....	77	54	65	65
Soybeans.....	84	54	65	80
Small grains.....	21	54	40	35
Hay and rotation pasture.....	35	55	47	37
Total cropland.....	217	217	217	217
<i>Knox County</i>				
Size of farm — acres.....	320	320	320	320
Corn.....	106	80	85	64
Soybeans.....	26	26	21	42
Small grains.....	40	53	53	53
Hay and rotation pasture.....	42	53	53	53
Total cropland.....	214	212	212	212

learn to grow soybeans without soil losses, maintain our bean acreage, and reduce corn acreage. We have now, and always have had, a shortage of protein feeds, whereas carbohydrate feeds have been more abundant.

The complete conservation farm plan proves its worth. Farmers are vitally interested in the economic returns from their farm businesses. Before they make adjustments, they ask "Will it pay?" The long-time benefits of conservation are positive. Comparison of farms having complete conservation plans with neighboring, otherwise comparable farms show that the conservation farms had more land in legumes and grasses and less in corn and soybeans, had higher crop yields, produced more and better quality hay and pasture, fed more livestock, had higher livestock production and return, and secured larger net farm income.

Many believe that the quickest way to increase the volume of farm business and earnings is the operation of additional acreage; better farming of existing acreage is often sounder.

TABLE 5. — SELECTED FACTORS ANALYZING THE FARM BUSINESS,
CONSERVATION AND NONCONSERVATION FARMS, ILLINOIS

Items	McLean County		Madison and St. Clair Counties		Stephenson, Jo Daviess and Winnebago Counties	
	9-Yr. Av., 1936-44		6-Yr. Av., 1939-44		5-Yr. Av., 1940-44	
	20 Conser- vation farms	20 Noncon- serva- tion farms	35 Conser- vation farms	35 Noncon- serva- tion farms	40 Conser- vation farms	40 Noncon- serva- tion farms
Percent tillable land in:						
Legumes.....	18	10	30	25	34	27
All hay and pasture.....	27	19	35	29	44	40
Corn and soybeans.....	54	62	30	34	37	42
Corn yield, bu.....	56	50	51	47	73	65
Crop yield index (co. av. = 100).....	104	94	102	96	104	96
Gross income per acre.....	\$30.15	\$26.23	\$30.70	\$27.83	\$45.83	\$36.63
Total expenses per acre.....	14.43	14.25	15.97	17.60	22.44	18.82
Net income per acre.....	15.72	11.98	14.73	10.23	23.39	17.81
Difference in net income per acre.....	+\$ 3.74		+\$ 4.50		+\$ 5.58	

Money invested in soil conservation and fertility improvement on existing acreage will give greater returns than investment in additional land at present prices.

The following of a complete conservation plan, that is, (1) testing and treating the soil, (2) land use in accordance with its capabilities, (3) use of rotations with ample deep-rooted legumes, and (4) proper water disposal practices, such as grass waterways, contouring, strip-cropping, terracing, tile and open-ditch drainage where needed, plus the efficient use of the legumes and grasses through livestock, returned, at present price levels, \$589 a year above the nonconservation system of farming on the equivalent of a 160-acre farm in McLean County; \$720 in Madison-St. Clair Counties; and \$892 in Stephenson, Jo Daviess and Winnebago Counties.

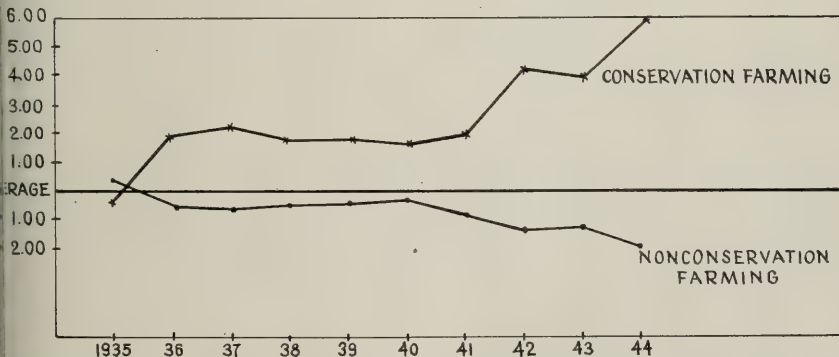


FIG. 1. — DIFFERENCE IN NET INCOME PER ACRE, CONSERVATION AND NON-CONSERVATION FARMS, McLEAN COUNTY, ILLINOIS, 1935-1944

Time and costs involved. Increased earnings may not be immediate, and considerable time and money must be expended before such positive results are achieved. The conservation farms used in these comparisons have had plans in operation from one to eight years. Some of the benefits of conservation, such as yield increases from contouring, result the first year, but yield increases from applications of limestone generally do not show up until the rotation has gone through a complete cycle and a crop of clover or other legumes has been plowed down.

The cost of soil conservation will vary farm to farm, but assuming that three tons of limestone and one-half ton of rock phosphate are needed per acre, costs of this treatment will approximate \$15 to \$18 per acre — and to this must be added the cost for potash needed, as well as drainage or terracing. Thus adoption of a conservation plan may easily cost \$20-\$25 or more per acre, plus the required time to put the program into operation.

Obstacles to sound conservation farm plans and practices. While conditions vary farm to farm, some more common obstacles to the adoption of conservation practices, a soil fertility improvement program, and a sound, long-time complete conservation plan are:

1. The present parity price relationship which favors grain farming over livestock farming and thereby encourages a soil-depleting type of farming.
2. Labor — high cost, scarcity, and the difficulty of securing interested and trained labor for the handling of livestock.
3. Lack of the "know-how" of good farming — many farmers still are not aware of the seriousness of soil fertility depletion and erosion. Many others who are more or less aware of the problem do not know what to do about it or how to do it.
4. Lack of capital and/or adequate financing to get the job done. The possible loss of immediate income from reducing acreage of cash crops often stands in the way of land use changes by grain farmers.
5. Landlord-tenant problems — unstable and short term tenure, lack of interest in the land by either landlord or tenant — or both.

Favorable factors encouraging conservation farm plans and practices. 1. All agencies in the field of agriculture are working together as never before on a unified program to provide farmers with the "know-how" and the wherewithal for getting the job done, such as:

- a. The expanded and intensified adult and youth educational program of the Extension Service.
- b. Vocational Agriculture, rural school and other teaching programs.
- c. The expansion and intensification of the Soil Conservation Districts work.
- d. The AAA materials and practices program.

- e. Credit agencies sponsoring loans for soil conservation and fertility improvement. Particular mention is due here of the new amortized conservation loan plan.
2. More people — farmers and non-farmers — are becoming educated to the fact that our present exploitative system of farming is destroying land much faster than it is being rebuilt.
3. More farm operators and farm owners see the long-time advantages of the conservation way of farming and are working together in that direction.

In conclusion, the two most important requirements for better farming are the provision of farmers with the "know-how" and the necessary capital to carry out the "know-how".

Only the rich can afford nonconservation farming. It takes three to eight years of benefits to pay for the costs of a conservation program. Those who do not adopt such a program will find that their earnings will steadily decline. Farm records show that the spread in earnings between good and poor farming is becoming wider (see Figure 1).

E. L. SAUER

CHANGES IN SIZE OF FARM¹

What will happen to the size of our farms in the years ahead? Many farm people are thinking about this question, and about the economic and social consequences of changes that appear to be taking place. Will our farms continue to get larger and larger, as they have been doing for the past ten years? Will this continue, as some people fear, to the point where large numbers of small farmers are "squeezed out?" Or, will postwar conditions result in a decrease in the average size of farms such as occurred in the depression years of the early 1930s?

Before looking to the future let us briefly review past changes in the size of Illinois farms. Study of Census figures is the basis for the following five conclusions:

1. For all practical purposes Illinois farm lands were completely settled by 1880. Since 1880 changes in the average size of farms have been due very largely to changes in the number of farms, with a high of 264 thousand farms in 1900 and a low of 206 thousand in 1945. When we talk about an increase in the average size of farms we are talking about a decrease in the number of farms, and vice versa.

2. The average size of Illinois farms has increased a good deal since 1900 (Figure 1). In 1945 the average was 153 acres. This is 16 acres

¹ Based on a paper presented at the 45th Annual Farm and Home Week, University of Illinois, February 14, 1946.

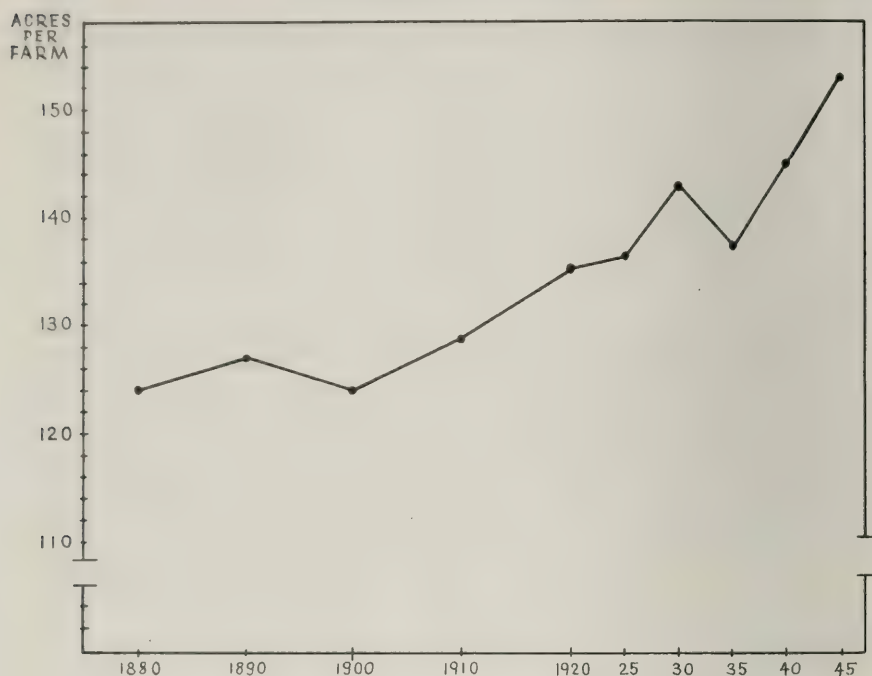


FIG. 1.— AVERAGE SIZE OF FARMS, ILLINOIS, CENSUS YEARS 1880 TO 1945

larger than the 137 acres in 1935, and 18 acres larger than at the end of World War I. Increases in size were most rapid between 1925 and 1930, and between 1935 and 1945. The one period of marked decrease was between 1930 and 1935.²

These changes are largely accounted for by two factors. The first is mechanization, particularly the use of tractor power, which has made it possible for one man to care for larger and larger acreages. The second is the general employment situation and business prosperity. The outstanding example of the effect of the latter factor is, of course, the depression of the early thirties, when many families turned, or returned, to the security of farming.

3. The third point of interest concerns changes in the number of farms of different sizes (Figure 2). In connection with these data it should be recalled that the total number of farms in Illinois declined between 1920 and 1940. The number of farms larger than 260 acres has increased steadily — when the data for 1945 are available they will no doubt show

² Data for Figure 1:

Year	Size	Year	Size	Year	Size	Year	Size
1880	124 acres	1910	129 acres	1930	143 acres	1940	145 acres
1890	127 acres	1920	135 acres	1935	137 acres	1945	153 acres
1900	124 acres	1925	136 acres				

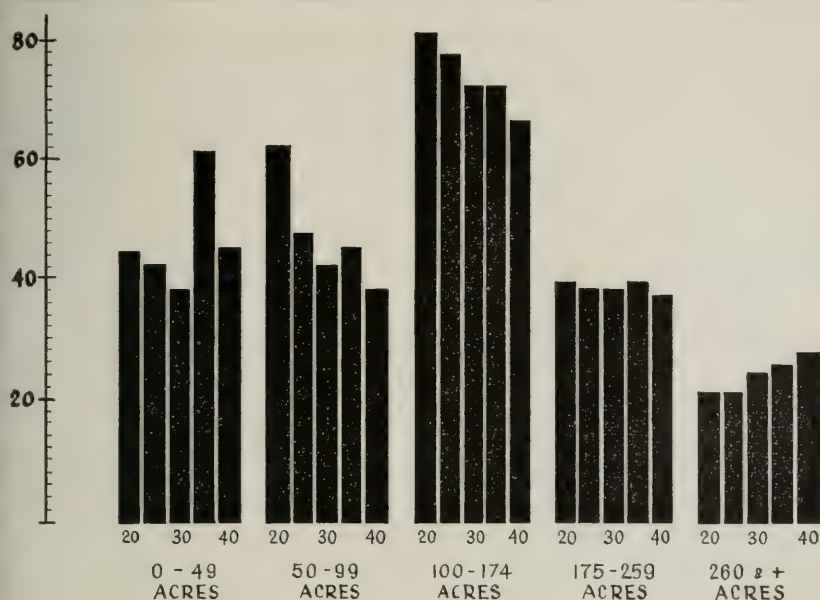


FIG. 2.— NUMBERS OF FARMS BY SIZE, ILLINOIS, CENSUS YEARS 1920 TO 1940

further marked increase in the number of the largest farms. The number of small farms, under 50 acres, increased sharply between 1930 and 1935. Although the number of these small farms has decreased since 1935 it is still relatively large. The numbers in the groups including the 80 acre and the 160 acre farms have declined sharply since 1920. In 1920 there were 52 thousand farms between 50 and 100 acres in size; in 1940 there were only 38 thousand. In 1920 there were over 81 thousand farms between 100 and 175 acres; in 1940 there were less than 66 thousand. These data bear out two observed trends. Full-time commercial farms are becoming larger, to adapt them better to modern farming methods. On the other hand the number of smallest farms has not decreased as much as one might expect. Many of these are part-time farms — we see them along all of our highways — and farms on which owners have partially retired by renting out or selling a part of their land.

4. 1940 census data clearly indicate that a relatively large part of our agricultural production is on the larger farms (Table 1). Twenty-one percent of the farms were under 50 acres but had only three percent of the state's farm land, and an even lower percent of the cropland. Thirteen percent of the farms were 260 acres or larger and had 33 percent of the land.

5. Although changes in the size of farms have been roughly similar in different areas of the state there are some interesting differences. In the

TABLE 1. — PERCENT OF FARMS, FARM LAND, AND VALUE OF LAND AND BUILDINGS AND MACHINERY, BY SIZE OF FARMS, ILLINOIS, 1940

Size of farms (acres)	Percent of farms	Percent of farm land	Percent of value of land and buildings	Percent of value of machinery and equipment
0 - 49	21	3	6	4
50 - 99	18	9	8	9
100 - 174	31	29	30	32
175 - 259	17	26	24	25
260 acres and over	13	33	32	30

Chicago dairy area farms are small and have changed less in size than in any other area of the state. In the livestock areas of western and northwestern Illinois the size of farm decreased relatively little in the early thirties. Although the average size has increased since 1935 the increase has not been as great as in the cash-grain area of east central Illinois. These differences reflect the differences in the extent to which mechanization has affected livestock and grain farming. Of all areas of the state, the greatest increase in size of farms has been in the general farming area, south and west of the cash-grain area. This has probably been influenced by the importance of soybeans in the area. In southern Illinois changes have been similar in the St. Louis dairy area and in the Wabash Valley. In these areas the size of farms decreased sharply between 1930 and 1935 but has increased rapidly since 1935. In the extreme southern counties and in the claypan area of south central Illinois farms are relatively small and they have not increased in size nearly as much as in the St. Louis and Wabash Valley areas.

The discussion thus far has been based on Census data. For further information on changes in the size of farms, and particularly regarding other changes that go along with change in size, we turn to farm management records summarized by the University. We refer to a study made in southern Illinois by Mr. O. B. Brown of our staff.¹ There is little reason to believe, however, that the changes noted in the southern Illinois study are basically different than those taking place on what are mainly full-time commercial farms in other areas of the state.

Studying identical farms for the period 1938-1944, Mr. Brown found that there was an average increase in size of 26 acres per farm between the average of three prewar years, 1938-1940, and three war years, 1941-1944. Almost exactly one-half of the farms increased in size. The average increase for these farms was 62 acres. The other half of the farms that remained the same size, or decreased, averaged 13 acres smaller in the latter period.

¹ Brown, O. B., *Economic Trends in Southern Illinois Agriculture, 1938-1944*. Unpublished thesis, 1945.

Who increased the size of their farms? There are three points of interest in this connection. First, they were younger men than those whose farms remained the same size or became smaller. Although the difference in ages averaged only five years it is significant that the difference was much wider than this in the communities where the land is least productive. Second, the farms that increased in size averaged about the same size in the prewar years as those that did not increase. In other words it was not a case of small farms becoming larger, but mainly a case of farms already average or larger in size becoming still larger. Third, and probably most important, farmers who increased the size of their farms had more machinery in the prewar years and added considerable machinery even during the war.

For example, in the Wabash Valley counties machinery and equipment investments in 1938-1940 averaged \$1,750 on farms that increased in size and \$807 on those that did not increase. In 1942-1944 this investment had increased to \$2,629 on the farms that increased in size and to only \$1,210 on those that remained the same or decreased in size. This situation is generally well known and has led some people to say that those farmers who for some reason got a head start in getting machinery are taking the land away from others. Perhaps we should not be concerned about some farmers getting a head start, but here is a good example of the importance of having available capital with which to make improvements in farming methods.

How was the increase in size of farms brought about, by buying additional land, or by renting? The answer is "by both methods" but as a whole much more of the increase was the result of renting additional land rather than through buying. This increase through renting additional land was particularly dominant in the communities of poorer land. This practice merits further comment. Among the accounting farms in southern Illinois the most common tenure setup is one in which a part of the land is owned and a part rented. In fact among account keeping co-operators, there are now more of these part-owner farms than full owners and full tenants combined.

For the owner of a small farm well equipped with machinery renting additional land is a logical method of expanding and increasing income. To the extent that they are equipped to do a better job of farming this rented land than the owner this would seem to be an all-around good system. But it does create or intensify a real problem for the whole community, for we know that much of the land rented in this way is over-cropped and not well maintained. In some cases renters of this land are deliberately using or abusing it as a means of making real progress in building up the land that they own. In general, however, these renters

willingly go as far as the owners of the land will go in spreading limestone and needed plant food materials and in growing legumes. We need not be particularly critical of either the owners or renters of this land, but we should recognize that there is a system of tenure, undoubtedly stimulated by the war, that presents a real problem in soil conservation.

What changes in the use of land have gone along with the increase in size of farm? Let's look again at the farms in the Wabash Valley counties. Here are some striking figures.

Acre per farm	Acres per farm on farms that increased size		Acres per farm on farms with the same or decreased size	
	1938-40	1941-44	1938-40	1941-44
Tillable land.....	204	263	140	138
Corn.....	54	80	35	38
Oats.....	12	11	8	8
Wheat.....	42	40	27	18
Soybeans.....	7	36	3	7
Hay and tillable pasture.....	84	73	61	62

The farms that increased in size averaged 59 acres more of tillable land in 1941-1944 than in 1938-1940. Between these periods they increased corn from 54 to 80 acres, and soybeans from 7 to 36 acres per farm. Acreages of oats and wheat were practically the same in the two periods, but the acreage of tillable land in hay and pasture actually decreased from 84 to 73 per farm. In other words these farmers apparently used practically all of their newly acquired land and some of their former hay and pasture land to increase corn and soybean production. The farms that did not increase in size had two less acres of tillable land in 1941-1944 than in 1938-1940. Between these periods they increased corn and soybeans slightly — corn from 35 to 38 acres, soybeans from 3 to 7 acres. They continued the same acreages of oats, hay and pasture, but reduced wheat from 27 to 18 acres. In other words the only change on these farms was a decrease in wheat acreage and a slight increase in corn and soybeans.

On all of the farms in this particular group there was an increase of 508 acres in soybeans produced for grain, between the prewar and war years. Of this 508 acres, 464 was on farms that increased in size, only 44 acres of the increase was on farms that did not increase in size.

How did crop yields hold up on the farms that increased in size as compared to those that did not increase? On the farms that did not increase in size per acre yields of all crops were a little higher in the war years than in the earlier period. On the farms that increased in size, aver-

age yields of corn and soybeans declined a little on the larger acreages; the yield of wheat did not change. This is what one would expect: The additional land, on which much of the corn and beans were produced, was not as productive, on the whole, as the acres farmed before the war.

What About the Future?

1. In the preceding discussion emphasis was placed on the importance of machinery in changing the size of farm. We know that farmers intend to buy a great deal of power machinery in the postwar period. And we can look for a further increase in the average size of full-time commercial farms. At the same time we can expect the smallest farms to have a more definite place in the future than in the past. Many of these will be primarily rural residences taking advantage of improved highways. Some will be part-time farms where the major income is from non-farm employment. There is also evidence, particularly in southern Illinois, that a considerable number of farmers are at least partially retiring on their farms. Getting along in years, and short of labor and equipment, these men are renting out their cropland, although they may keep their livestock and part or all of the pasture. If the land rented out is properly used this does not look like a bad arrangement. It does not change the number or average size of farms but makes one farm smaller and one larger.

2. Some people are concerned about the possibilities of our agriculture drifting toward a small number of huge "corporation" farms operated largely with hired labor. Although this would be an undesirable trend there is little if any evidence of it in Illinois statistics. The number of Illinois farms listed in the Census as 500 acres and over in size is only around two percent of the total. Furthermore, the average size of all of our accounting farms in the state has increased from 200 to 240 acres during the past 15 or 20 years. Yet the average number of months of labor employed on these farms has not changed over these years. The change in size of farm seems to be an increase in the family size farm to make it better adapted to modern methods. If they were family farms 15 or 20 years ago they are still family farms.

3. Looking at the problem from the standpoint of income, we are aware of wide differences in the earnings of different farms. Incomes on many farms are too low. This is true of some farms in all areas of the state, and in some areas it is typical of most farms. There are two obvious ways in which the farmer's production and income can be increased. One is to get more from his present acreage — and, of course, "acres" is really a poor measure of the size of a farm. The second is to farm more acres. Both methods of increasing production and earnings have a place. Much can be done on present acreages by improving the land, increasing crop yields, improving feeding practices, and better marketing. But there are

many farmers who can increase earnings easier by farming more acres, and by following a system of farming to which the land is better adapted. This is particularly true in poorer land areas where many small farms do not have sufficient production capacity to yield satisfactory returns to the farmer and his family. Many farms in such areas need not only more acres, but also a change in the system of farming, with less emphasis on grain production and more on grass.

We have pointed out the fact that farms have become larger in recent years. But this increase has not been accompanied by changes in land use that make for soil improvement. In fact the reverse has been true. War-time prices and demands for food products are largely responsible for this situation. It was the profitable and patriotic thing to do to increase corn and soybean production.

This raises the question of how a different set of economic conditions may affect the number and size of farms in the postwar years. If we should have serious unemployment in industry there is little doubt but that there would be an increase in the number of small farms, particularly in areas of low land values. The effect on full-time commercial farms is not so clear. One reason why there has been so much renting of additional land by some farmers has been the high prices of soybeans and wheat and the demand for corn for livestock feeding. With high prices it has been profitable for these farmers to run their tractors, combines and other machines over large acreages of rented land even though the yield on these acres was low. Prices may not have to drop much for this practice to become unprofitable, or at least for it to become merely a matter of "swapping dollars." Some farmers say that they will let this rented land go when prices decline. Some hope that, before the prices decline, they can have their own land built up to where they can take it easier on their smaller acreages.

We have intentionally avoided any discussion of the social implications of changes in the number and size of farms. For full-time farms, on which the family is dependent for income, our inference has been that many farms should be larger, particularly in the less productive land areas. This would mean fewer farms and fewer farm families. Likewise, the gradual increase in size of the family farm in all areas means fewer farmers. To a large extent we agree with the argument that favors a relatively large rural population for social and political reasons.

J. E. WILLS

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹ Survey of Current Business, December, 1942 and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE Cooperative Agricultural Extension
Work Acts of May 8 and June 30, 1914

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Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	117	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	188	245	199
1943.....	103	123	166	127	251	243	191	239	330	239
1944.....	104	124	168	132	265	249	189	266	334	236
1944 Dec....	105	126	170	134	264	270	201	277	337	232
1945 Jan....	105	126	173	134	278	239	178	274	330	234
Feb....	105	127	174	134	312	226	169	274	329	236
Mar....	105	127	174	135	294	249	184	276	326	235
Apr....	106	129	174	135	296	228	169	276	317	231
May....	106	130	174	135	293	242	179	274	307	225
June....	106	130	175	135	287	227	168	274	302	220
July....	106	129	174	135	282	208	154	...	286	210
Aug....	106	127	174	135	274	201	140	...	258	187
Sept....	105	124	171	136	256	192	141	...	214	169
Oct....	106	127	171	137	261	346	253	...	213	162
Nov....	107 ¹¹	131 ¹¹	173	137	282	332	242	...	213	168
Dec....	107 ¹¹	132 ¹¹	174	138	280	...	...	...	216	164 ¹¹

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Feb. 1945	Current months		
	1935-39	1944	1945		Dec.	Jan.	Feb.
Corn, bu.....	\$.66	\$1.07	\$1.07	\$1.04	\$1.06	\$1.06	\$1.06
Oats, bu.....	.31	.74	.68	.73	.73	.74	.74
Wheat, bu.....	.86	1.54	1.58	1.58	1.64	1.64	1.64
Barley, bu.....	.62	1.16	1.09	1.06	1.13	1.13	1.13
Soybeans, bu.....	.90	1.91	2.09	2.09	2.10	2.10	2.10
Hogs, cwt.....	8.52	13.47	14.25	14.20	14.30	14.30	14.30
Beef cattle, cwt..	7.88	11.89	13.12	12.80	12.00	12.30	13.30
Lamb, cwt.....	8.36	13.52	13.77	14.20	13.30	13.40	13.60
Milk cows, head	58.00	124.50	125.50	125.00	128.00	128.00	130.00
Veal calves, cwt.	8.66	13.32	14.22	14.20	14.50	14.40	14.60
Sheep, cwt.....	3.58	5.67	6.38	6.20	6.30	6.60	6.60
Butterfat, lb....	.27	.49	.48	.49	.48	.48	.48
Milk, cwt.....	1.68	3.02	2.95	3.00	3.05	3.05	3.05
Eggs, doz.....	.19	.31	.35	.31	.43	.36	.30
Chickens, lb....	.15	.24	.25	.24	.23	.23	.23
Wood, b.....	.25	.42	.44	.43	.45	.43	.43
Apples, bu.....	1.08	3.11	2.99	3.00	4.00	4.00	4.30
Hay, ton.....	9.39	17.65	17.72	20.50	16.60	16.60	16.00
Potatoes, bu....	.91	1.83	2.06	2.05	1.70	1.80	1.80

^{11 12} For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

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SUPPORTING FARM INCOME

In the December-January issue of *Illinois Farm Economics* we outlined a method of supporting farm incomes which we believe to be much preferable to price supports, both from the standpoint of farmers and from the standpoint of the general public welfare. Our plan would avoid interfering with the function of prices in directing the production and consumption of agricultural products. Furthermore, it would avoid the production controls that may be necessary to prevent a greater production than could be sold at the support prices. Such production controls, if effective, would reduce the quantity to which the support price would apply and thus reduce income. The purpose of this article is to analyze further the income support problem.

We should like to point out that our plan, although independently developed, is quite similar to one proposed by Professor Froker of the University of Wisconsin in the November 1945 *Journal of Farm Economics*. Others may have developed similar plans. Many economists have pointed out the disadvantages of price supports and a number have proposed the use of some kind of supplementary payments either in lieu of or in conjunction with price supports, or with a system of forward pricing.

Proposed payments are indemnities to farmers. One objection to our proposal is that it involves the payment of a subsidy to farmers—and farmers are said to be opposed to subsidies. In a sense, the “production payments” we propose would be a subsidy to agriculture. So are price supports (if they involve federal expense), seed loans, soil conservation payments, and a number of other governmental aids to agriculture. But would these production payments constitute an objectionable subsidy?

Suppose an incompetent driver smashes into your car. Is the payment you receive from him or his insurance company a subsidy? You don't call

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

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it that. You call it an indemnity, and you think that you deserve to receive it. Similarly, when farmers get hurt financially because of low market prices caused not by farmers' actions but by the failure of other industries to maintain full production, farmers may be said to deserve an indemnity.

The production payments which we propose would not reimburse farmers for the entire loss which they suffer in periods of low prices. The payments would not maintain the absolute level of farm income, but only assure that farm income would not fall below a certain proportion of the national income.

Support level is key question. But at what level, relative to national income, should farm income be maintained? This is a matter which we believe should be determined by Congress, not by the executive branch of the government. Unfortunately our former article contained a statement which might easily be interpreted to mean that the minimum ratio of per capita farm to national income should be determined by the administrator of the program. We believe, on the contrary, that the administration of any such program should be kept as free from political pressures as possible. One of the principal merits of our proposal is that under the authority of directive legislation the program could be administered on the basis of factual data concerning the income of farmers and others.

The question of what should be the minimum level of farm income relative to national income is of paramount importance. This decision concerns both the choice of a ratio and of just what elements should be included in the farm income. In our previous article we suggested the use of all cash farm income above purchases of feed and livestock.

An alternative basis would be the use of net income from agriculture. This includes not only cash income, but also the value of farm products consumed at home and the value of the dwellings occupied. From the gross income is subtracted not only purchases of feed and livestock, but all costs of production which constitute part of the income of other industries including such items as fertilizer, machinery and fuel. To put it another way, net income from agriculture includes (1) net income of farm operators, (2) farm wages, (3) rent to landlords not on farms, and (4) farm mortgage interest.

Other alternatives would be net income of persons on farms, from agriculture and the net income of farm operators. The usual "parity income ratio" is the ratio of the per capita net income of persons on farms, from agriculture, to the per capita net income of persons not on farms -- in terms of an index with a 1910-14 base.

Examples of alternative income ratios. That it does make a difference what sort of farm income we choose to support may be judged by an examination of the changes in the several income ratios shown in Table 1.

TABLE 1.—SELECTED INCOME RATIOS AND THE PARITY PRICE RATIO

	Ratios of per capita income ^a			Ratio of net agricultural to national income	Parity price ratio (1910-14 = 100)	Parity income ratio (1910-14 = 100)
	Farm cash less feed and live-stock purchased to national	Net agricultural to national	Persons on farms to persons not on farms			
1910	.446	.452	.288	.159	106	105
1911	.452	.424	.261	.146	94	95
1912	.459	.446	.280	.152	99	101
1913	.442	.420	.261	.141	100	95
1914	.453	.457	.289	.151	99	105
1915	.466	.437	.269	.142	93	97
1916	.483	.436	.267	.140	94	97
1917	.579	.592	.403	.186	118	140
1918	.667	.643	.453	.196	118	164
1919	.663	.605	.419	.179	109	152
1920	.499	.461	.302	.138	104	109
1921	.421	.306	.165	.090	75	60
1922	.433	.366	.213	.106	80	77
1923	.427	.368	.221	.103	86	80
1924	.458	.379	.227	.103	86	82
1925	.479	.423	.275	.113	92	100
1926	.442	.392	.252	.103	87	91
1927	.471	.401	.255	.102	86	92
1928	.468	.410	.267	.103	90	97
1929	.462	.392	.256	.098	89	93
1930	.426	.354	.223	.087	80	81
1931	.386	.313	.188	.077	64	68
1932	.389	.296	.167	.074	55	61
1933	.441	.354	.215	.091	60	78
1934	.454	.329	.201	.084	70	73
1935	.449	.398	.265	.100	84	96
1936	.459	.387	.260	.095	90	94
1937	.453	.401	.279	.097	92	101
1938	.437	.361	.243	.085	77	88
1939	.408	.336	.227	.078	77	82
1940	.394	.322	.228	.074	80	79
1941	.445	.390	.287	.088	94	100
1942	.500	.472	.364	.102	106	127
1943	.562	.519	.413	.102	119	144
1944	.574	.501	.395	.093	115	138

^a "Farm" or "agricultural" income in each case is per capita of farm population.

There are differences both in the trends and in the year-to-year changes of the various series shown.¹

The differences are due to a number of factors. The ratios in the first column differ from those in the second primarily because of the characteristics of the cost items which are subtracted from gross income to arrive at net. The cyclical fluctuations in prices of feed and livestock purchased correspond pretty closely to those of cash income, but there is much less cyclical fluctuation in the prices of farm machinery and sup-

¹ All data used in compiling the income ratios in this table were obtained from (1) *Net Farm Income and Parity Report*: 1943 and from (2) the June 1945 issue of *The Farm Income Situation*, publications of the Bureau of Agricultural Economics, USDA. There have been slight subsequent revisions in some of the figures, but it was thought best to limit the sources of data to these two in order that anyone who wishes to make comparisons of alternative income computations might readily refer to the same sources for their original data. The parity price ratios are from *Agricultural Prices*, January 31, 1944, p. 22 and July 30, 1945, p. 22.

plies. Consequently the percentage fluctuations in net income from agriculture are much greater than in cash income minus feed and livestock purchased. Another important factor was the shift from horses to mechanical power between 1910 and 1930. Most power for field work was formerly produced on the farm. Now it is purchased. As a result, the expenses of agricultural production tended to increase relative to sales. In periods when agricultural prices were severely depressed but when the prices of manufactured products were maintained at relatively high levels, the effect of this increased commercialization of agriculture was especially noticeable. Then too, net agricultural income takes account of inventory changes, and in some years such as 1921 and 1934, these are of primary importance in causing changes in net income to differ widely from changes in net sales.

A primary factor responsible for the differences between column three and column two is the change in the amount of farm mortgage interest charges. In the middle 1920's farm mortgage interest charges were more than three times as high as in 1910, but by 1940 they were less than 50 percent above the 1910 level. These interest charges, as well as rent and wages paid to persons not living on farms, are included in the figures of net income to agriculture, but not in the net income of persons on farms.

The fourth column differs from the second only in that it is not on a per capita basis and hence does not take into account the changing relative numbers of farm and non-farm population.

Determining production payments to individuals. The problem of determining the amount of the production payments needs to be considered from two standpoints: (1) What income data are to be used for each individual farmer in determining his "income base"? and (2) What should be the method of determining the percentage to be paid on the income base?

It is fundamental to our plan that the same percentage payment be made to all farmers. (The only exception to this is that a minimum should be set in order to avoid expense of administration of many very small payments.) The primary purpose of the common percentage to all farmers is to allow price changes resulting from the fundamental supply and demand conditions to have their proper influence in directing agricultural production. It is also important in providing for equality of treatment as between farmers. The percentage payment common to all farmers could be determined on the basis of nation-wide estimates of farm income relative to national or non-agricultural income, or it could even be determined on the basis of the U. S. index of prices of all farm products. Thus, if the farm price index were 75 percent of parity in a given year and it was

desired to support income on the basis of 90 percent of parity prices, payments of 20 percent should be made to each farmer.

The distribution of the payments as between individual farmers would depend upon their income for the year. It is essential, of course, that the determination of this income figure for each farmer be as simple and as easily substantiated as possible and yet be consistent with the purpose of the production payment program. In our opinion these requisites would be well met by the use of each farmer's total sales minus purchases of feed and livestock. This would be much easier than estimating net income, either of the farm or of the farm operator, because many more items of cost would enter into the calculation of the latter and the determination of some of the items of cost such as depreciation would be highly uncertain no matter how adequate the farmer's accounts.

Furthermore, the determination of the individual payments on the basis of net sales is essentially fair, inasmuch as the net sales represent the best measure of the relative contribution of different farmers to the year's flow of agricultural products made available for food and fiber to the non-agricultural population. In this connection it is to be borne in mind that the payments we propose are to pay farmers for production. Relief payments to those in drought areas or those who have suffered some other misfortune not connected with the lack of balance between the agricultural and non-agricultural portions of the economy should be something separate and apart from these production payments.

It would obviously be unfair as between individual farmers to base payments on a fixed percentage of total sales. If in any given year a farmer decided that there would be a supplementary production payment he might increase his total sales by buying feeder cattle, putting them on feed for only a very short time and then selling them. In such a case, even though he made virtually no contribution to farm production and even though his feeding operations were really uneconomic, he would stand to gain as a result of the government payment.

It may appear that the use of net sales would be unfair to cattle feeders because in a period of declining prices a cattle feeder's expenses for feeders and feed might be greater than his gross sales. He would then not be eligible for any production payment. Cattle feeding, however, is generally recognized as a speculative business. Is there any reason that the man who wants to take a chance of profit or loss on his purchase and sale operations would not be equally willing to take a chance with regard to whatever production payment he might be eligible for on his net sales? Production payments would be a small matter as compared with the net sales themselves. In short, we do not consider the possible unfortunate situation

of cattle feeders in periods of declining prices a valid objection to the use of net sales as a basis for allocating payments as between individuals. To remove the element of risk from such speculative operations could scarcely be accomplished without completely altering the system of private enterprise for profit.

Total payments under different methods. As a means of analyzing the differences in production payments which might result from various methods of computing their total we have prepared Table 2. For each of the years, 1920 to 1941, the aggregate amounts of production payments which might have been made under several methods of determining the income floors are shown. Obviously, wide differences in the total amount of payments would have resulted from these methods. These differences arise in part from varying trends of the ratios, in part from differences in the year-to-year changes in the ratios, and in part from differences in the arbitrarily chosen support levels. The 44 percent level chosen in Method A is approximately 98 percent of the 1910-14 average of the

TABLE 2.—AGGREGATE GOVERNMENT PAYMENTS IN MILLIONS OF DOLLARS UNDER VARIOUS METHODS OF DETERMINING INCOME FLOORS^a

	Method A	Method B	Method C	Method D	Method E	Method F
1920.....	330	1,151	1,898	1,451	603	2,265
1921.....	119	530	819	952	352	1,011
1922.....	257	554	701	394	448	932
1923.....	...	323	542	410	...	586
1924.....	...	...	...	...	...	188
1925.....	...	89	...	321	163	...
1926.....	...	...	...	439	...	...
1927.....	...	...	...	...	...	...
1928.....	...	72	...	...	...	...
1929.....	...	72	...	...	...	...
1930.....	253	782	569	990	...	...
1931.....	790	1,221	1,127	2,317	202	395
1932.....	552	1,085	1,086	2,692	71	485
1933.....	...	447	444	2,362	...	...
1934.....	...	824	730	1,611	...	34
1935.....	...	...	...	449	...	...
1936.....	...	142	...	...	...	...
1937.....	...	...	...	...	...	...
1938.....	48	549	105	1,151	...	...
1939.....	530	994	444	1,138	...	...
1940.....	828	1,327	660	881	...	...
1941.....	...	124	...	...	...	...

^a **Method A.** Per capita farm income less feed and livestock purchases should be 44 percent of per capita national income.

Method B. Net income from agriculture, per capita of farm population, should be 39.582 percent (90 percent of the 1910-14 average) of the national income per capita.

Method C. Farm income should be maintained at 90 percent of parity. (Figures in this column are not accurate beyond about tens of millions of dollars, because income ratios as published by the USDA to even percentages of the 1910-14 average were used as the basis of the calculations.)

Method D. Net sales of farm products (cash income from sales minus feed and livestock purchased) should be supplemented in the same proportion as 90 exceeds the yearly average parity price ratio. (Figures in this column are not accurate beyond about tens of millions of dollars, because parity price ratios as published by the USDA to even percentages of the 1910-14 average were used as the basis of the calculations.)

Method E. The ratio of cash farm income minus feed and livestock purchases, per capita of farm population, to per capita national income should not be less than 90 percent of the 10-year average ratio (including the current year and the nine previous years) as computed without including the government payments.

Method F. Net income from agriculture per capita of farm population should be maintained so that its ratio to the per capita national income will not fall below 90 percent of the previous 10 years when government payments are not included in computing the average ratio.

ratio to which it applies, and yet under it the payments would have been less during the early 1920's than under any of the other methods shown. Under Method A, payments for 1940 would have been larger than for any other year, whereas under Method C, payments for 1940 would have been exceeded by those for six other years.

Perhaps the most serious problem suggested by the differences in the results is that any income or price ratio which may be chosen may get "out-of-date." That is the primary difficulty with parity prices of individual products. To a lesser extent it is a danger with any ratio of price indexes or of income aggregates.

A possible means of dealing with this difficulty would be to provide an adjustment for trend. How such a trend should be objectively determined is beyond the scope of this article. It may be observed, however, that the use of a moving average of the ratio for previous years would not be a very satisfactory solution. Its effect would be to make the support level too high after a period of price inflation, and too low after a period of price deflation. This is indicated by the payments which would have been made under Methods E and F. Under each of these methods payments in the early 1920's would have been higher than those of the early 1930's.

A sound program must be based on over-all income approach. We believe that a sound program of aid to agriculture should preserve the system of competitively determined market prices to direct the production and consumption of agricultural products. Any general program designed to improve the balance between agriculture and other industries should, furthermore, avoid the possibility of making the relative incomes of individual farmers dependent upon political influences. The determining of the relative incomes of individual farmers should be left to the impersonal forces of competition and the market place, rather than to legislation or the decisions of government employees. The federal government should be concerned with providing conditions under which agriculture will receive a fair share of the national income, rather than attempting to influence prices of individual products or the relative incomes of individual farmers.

E. J. WORKING and L. J. NORTON

CONTOURING PRODUCES AND CONSERVES¹

Contour farming makes possible increased crop production and at the same time conservation of soil and water. Contouring prevents runoff of most of the rainfall, thus conserving moisture needed for plant growth.

¹ Summarized from a study carried out cooperatively by the Agr. Econ. Dept., U. of I. Col. of Agr. and Econ. Research Sec. of the Soil Cons. Service, U. S. Dept. of Agr., E. L. Sauer, Project Supervisor.

TABLE 1.—AVERAGE PER ACRE YIELDS ON THE CONTOUR AND NOT ON THE CONTOUR ON THE SAME ILLINOIS FARMS, 1945

Item	Corn	Soybeans	Oats	Wheat
Number of farms.....	80	12	21	20
Yield on contour (bu.).....	49.9	19.2	54.5	24.5
Yield not on contour (bu.).....	43.9	16.2	47.4	20.8
Number of farms on which crop on contour yielded higher..	71	12	18	19
Yield advantage from contouring (bu.).....	6.0	3.0	7.1	3.7
Percentage increase from contouring.....	13	15	13	15

TABLE 2.—AVERAGE PER ACRE YIELDS ON THE CONTOUR AND NOT ON THE CONTOUR ON THE SAME ILLINOIS FARMS, BY AREAS, 1945

Item	Corn	Soybeans ^a	Oats	Wheat ^a
Southern (St. Clair and Madison counties)				
Number of farms.....	19	8	4	20
Yield on contour (bu.).....	44.0	18.2	40.5	24.5
Yield not on contour (bu.).....	36.8	15.0	37.0	20.8
Number of farms on which contour crop yielded higher..	18	8	3	19
Yield advantage from contouring (bu.).....	7.2	3.2	3.5	3.7
Central				
Number of farms.....	19	4	5	
Yield on contour (bu.).....	51.1	22.6	63.0	
Yield not on contour (bu.).....	47.1	19.6	55.0	
Number of farms on which contour crop yielded higher..	16	4	4	
Yield advantage from contouring (bu.).....	4.0	3.0	8.0	
Northern				
Number of farms.....	42		12	
Yield on contour (bu.).....	51.0		57.6	
Yield not on contour (bu.).....	45.1		50.2	
Number of farms on which contour crop yielded higher..	37		11	
Yield advantage from contouring (bu.).....	5.9		7.4	

^a No soybeans were grown on the farms studied in northern Illinois and no wheat on the farms studied in central and northern Illinois.

Since runoff is largely prevented by contouring, erosion of soil and fertility elements is likewise reduced.

Yield increases from contouring in 1945. Table 1 shows the yield increases for crops grown on the contour compared to farming up-and-down the slope on the same Illinois farms for 1945.¹

Illinois farmers contour-farming sloping land in 1945 had increased production equivalent to having 13 percent more land in corn and oats and 15 percent more in soybeans and wheat.

1945 contour yield increases by areas. Contour farming resulted in substantial yield increase in each of the areas of Illinois studied (Table 2).

Average results for 7-year period 1939-1945. The profitability of using conservation practices such as contour farming, strip cropping,

¹ "Contour" as used in these summaries includes crop yield data for contour farming an entire field with the same crop, contour farming with terraces, contour farming with buffer strips and strip cropping. Crops not on the contour on the same farms (where crops were contoured) were planted up-and-down the slope or following the usual field pattern.

TABLE 3.—YIELD INCREASES FOR CROPS GROWN ON THE CONTOUR
COMPARED TO FARMING UP-AND-DOWN THE SLOPE ON THE SAME
ILLINOIS FARMS, 7-YEAR AVERAGE, 1939-45

Crop	Increase from contouring	
	Bushels per acre	Percent
Corn.....	6.9	12
Soybeans.....	2.7	13
Oats.....	6.9	16
Wheat.....	3.4	17

TABLE 4.—PERCENT OF ACCOUNTING FARMS REPORTING CONSERVATION PRACTICES
THAT HAD ALL FARMING OPERATIONS ON THE CONTOUR AND A COMPLETE
CONSERVATION PLAN IN OPERATION, 1943, 1944, AND 1945

Area	1943	1944	1945
Southern Illinois.....	35	41	63
Central Illinois.....	32	35	55
Northern Illinois.....	28	55	72
Total.....	30	45	65

TABLE 5.—DOLLARS AND CENTS VALUE PER ACRE FROM CONTOURING IN ILLINOIS

Crop	Average yield increase 1939-45	1945 Illinois farm price	Increased returns per acre from contouring
Corn.....	6.9 bu.	\$1.07	\$7.38
Soybeans.....	2.7 bu.	2.09	5.64
Oats.....	6.9 bu.	.68	4.69
Wheat.....	3.4 bu.	1.58	5.37

terracing and using grass waterways is shown by the 7-year average yield increases from contouring in Table 3.

Increased use of conservation practices and plans. After a year's experience at contour farming, farmers generally are sold on this conservation practice. Likewise, more farmers are adopting a complete conservation plan, Table 4. In the three northwestern counties of Illinois (Stephenson, Jo Daviess and Winnebago), 54 percent of all of the account-keeping farms have complete farm conservation plans in operation.

Need for contouring in 1946. There is a critical need for 1946 production of grains for food and feed. The need for contouring that arises from the fact that 45 percent of Illinois cropland has more than a 2 percent slope plus the acute needs for grain for food and feed, should be reason enough for Illinois farmers to farm more of their sloping land on the contour in 1946.

Dollars and cents value of contour farming in 1946. Using the 7-year average yield increases for contouring as shown in Table 3, and applying 1945 average Illinois farm prices, the possible dollars and cents gains per acre from contour farming sloping Illinois cropland in 1946 are shown in Table 5.

E. L. SAUER

THE EFFECT WHICH INDUSTRIAL PRICE AND WAGE POLICIES HAVE UPON FARM INCOME*

Socialization of several American industries is not only possible, but probable within the next 15 or 20 years, if private industry in this country fails to maintain full employment and a high level of production during this period. Mass unemployment in Great Britain from 1920 to 1940¹ led to the Attlee Labor government with a five-year plan for socialization of coal, gas, railways, electricity, trucking, canals, docks, civil aviation and probably the iron and steel industry. The United States also had mass unemployment with one out of every six wage-earners jobless from 1930 to 1940.² Our free-enterprise system under a democratic form of government is now definitely on probation. Mass unemployment piled on top of a national debt of 275 billion dollars, can lead to national bankruptcy. Such a calamity bodes no good for free enterprise and democratic institutions.

What can be done to maintain full employment and a high level of production so that we can preserve our free-enterprise system under a democratic form of government?

In an attempt to answer this question, three major problems which now face our American economy will be discussed. These are:

- (1) Adjusting from a wartime to a peacetime economy.
- (2) Adjusting industrial prices and wages so as to maintain full employment and a high level of production.
- (3) Alleviating tensions between labor, management, and farmers which prevent full employment and high productivity.

Adjusting from a Wartime to a Peacetime Economy

Farmers, management, and city workers deserve the highest praise for the results of their efforts in increasing the physical volume of production to meet wartime needs. In World War I farmers increased production 10

* Talk given at Farm and Home Week, University of Illinois, February 14, 1946.

¹ Ministry of Labour, Great Britain, Twentieth and Twenty-Second Abstract of Labour Statistics of the United Kingdom.

² National Industrial Conference Board, Economic Almanac for 1943-44 (1943), pp. 120-121.

percent, mostly in wheat. In World War II, in spite of labor shortages and shortage of machinery, Dean Rusk of the University of Illinois College of Agriculture tells us farm production increased from 20 to 25 percent — this time in many intensive products, such as hogs, milk, poultry, eggs, and canning crops, as well as soybeans and in hemp.³ Urban production in 1944 was over twice that of prewar years and was brought about with only a 25 percent increase in the labor force. The speed with which farmers and urban groups converted a peacetime economy into a wartime economy astonished our allies, confounded our enemies, and, combined with aggressive action of our armed forces, won the war. This magnificent job redounds to the credit of farmers, management, and labor as well as to those doing the actual fighting.

In readjusting from a wartime to a peacetime economy, many people are asking: Why are our industries still lagging and not producing full tilt? How long will it be before the present differences between labor and management are resolved? What about inflation?

During the war, agriculture, labor, and industry worked together to fight a common enemy. With the enemy vanquished, it was almost inevitable that some group conflicts would develop. The unusual makes news and hence the papers have been headlined with the controversial issues. Underlying these differences, however, is the fact that reconversion to a peacetime economy is already well underway. Industrial production in January 1946, just five months after Japan surrendered, was 59 percent higher than our 1935-39 average, while in December before the steel strike, manufacturing industries produced 64 percent more goods than in prewar years.

Present evidence points to an early end of the big strikes such as those in the iron and steel and automobile industries. While we are likely to have many other strikes during the year, it is probable that industrial production will reach 80 percent above prewar by the end of 1946. Hence, while slowing down total production, the major problems now confronting our American people are not those of converting from a wartime to a peacetime economy. Rather, our major problems are to prevent a wild inflation of prices and to maintain full employment and a high level of production, particularly after accumulated demands for autos, houses, and a thousand and one other things, have been satisfied.

Can a Wild Inflation Be Prevented?

A wild inflation of prices in the United States can be prevented if we, as citizens, have the will to do it. With all of its faults, which it will admit

³ Rusk, H. P., "Looking Ahead." Talk given before the Thirtieth Annual Meeting of the Illinois Agricultural Association, Chicago, Illinois, December 1, 1944.

were many, the Office of Price Administration did a fine job in preventing wild rises in prices during the present war. At the end of World War I in 1918, wholesale prices of all commodities were 102 percent higher than in 1914.⁴ In August 1945, at the end of World War II, wholesale prices were only 40 percent above those in 1939.⁴

The present high level of consumer purchasing power carries with it the threat of a wild inflation with the disastrous probability of ultimate deflation. Price ceilings should be continued until the volume of goods for sale catches up with consumer purchasing power available for buying these goods. Take coffee for example. As soon as enough coffee was available price ceilings were unnecessary. Probably the need for price ceilings on most goods will have disappeared within the next year. Price ceilings should be discontinued as soon as possible when need for them has ceased.

Flexible Farm and Automobile Prices and the Prosperous 1920s

In Great Britain one out of every eight urban employees was jobless from 1920 to 1929¹ while after 1921 unemployment in the United States during the decade was negligible.² Why? This situation can be attributed primarily to two things: (1) Flexible farm prices, and (2) flexible automobile prices.

As every farmer then in business knows, from 1919 to 1921 the bottom dropped out of farm prices. Farm prices in 1921 were only slightly more than one-third of those for 1919.⁵ These reductions in the price of food combined with lower rents and other living costs contributed much toward the revival of urban business during this decade.

Large reductions in automobile prices from 1920 to 1922 paved the way for the revival of this industry. This was evidenced by a sustained and increased production of automobiles. Prices of Model T Fords were reduced in a series of price reductions from \$575 f.o.b. Detroit in 1920 to \$298 in October 1922.⁶ The individualism of the Ford Motor Company forced its competitors to make corresponding reductions, while the far-reaching influences of rapid expansion in the automobile industry stimulated many other industries. Building construction increased from 3.1 billion dollars in 1921 to 5.8 billion dollars in 1929.⁶ This increase along with sustained production for a world market stimulated by foreign loans helped maintain full employment during the twenties.

In 1921 employment in the automobile industry was 38 percent below that of 1920 but by 1922 it had increased 10 percent *above* that of 1920. Employment in manufacturing industries as a whole in 1922 was still 11

⁴ From reports of U. S. Bureau of Labor Statistics.

⁵ From yearbook of U.S.D.A.

⁶ Bartlett, Roland W., "The Milk Industry," The Ronald Press Company, 1945, pp. 123-125.

percent *below* that for 1920.⁷ If automobile prices had been held at a rigid level it is probable that the industry would have taken years to have increased market outlets sufficiently to get so many people back to work.

Factors other than employment showed corresponding increases. While money wages in 1922 averaged \$3.81 less per week than in 1920, real wages were 5 percent higher because of lower costs of living. As a result of higher real wages and more people at work the purchasing power of factory payrolls in the automobile industry was 16 percent *higher* in 1922 than in 1920. For manufacturing industries as a whole the purchasing power of factory payrolls was 13 percent *less* in 1922 than in 1920.⁷

What about hourly rates? Actual hourly rates were reduced from 70 cents per hour in 1920 to 59.2 cents in 1922. When adjusted, however, for changes in cost of living, hourly rates in 1922 were 70.6 cents per hour or slightly higher than those for 1920.⁶

Keen competition resulting from mass production and distribution of low-priced cars affected the market as one might expect. The number of automobiles increased from 9,346,195 in 1921 to 23,121,589 in 1929 while the number of people per car decreased from 11 in 1921 to 6 in 1929.⁶ Automobiles in Great Britain are still a luxury with an average of only one car for 25 people while for most of Europe the average is around 1,000 people per car.

Inflexible Industrial Prices and Unemployment of the 1930s

Both Great Britain and the United States had mass unemployment from 1930 to 1939 with about one out of six wage-earners in both countries out of work. Unlike the 1920s there was no large urban industry in the United States to work with agriculture in reducing prices and make possible expansion in the sale of goods sufficient to absorb jobless workers. And, while in recent years many industrial leaders have paid high graduated income taxes and excess profit taxes and have turned back funds to the government through negotiation of contracts, the fact is that *high taxes in the United States were not responsible for mass unemployment* during the thirties. Rather unemployment was the direct result of failure to lower industrial prices sufficiently so that the mass of consumers could buy the goods which could be produced.

In his excellent report before Congress in 1935 on Industrial Prices and Their Relative Inflexibility,⁸ Gardiner C. Means showed the relative decline in wholesale prices and production of specific commodities from 1929 to the spring of 1933 as follows:

⁷ From reports of the National Industrial Conference Board.

⁸ Means, Gardiner C., *Industrial Prices and Their Relative Inflexibility*, 74th Congress, First Session. Senate Dec. 13 (1935), p. 8.

	Percent drop in	
	Wholesale prices	Production
Agricultural implements	15	80
Motor vehicles	16	80
Cement	18	65
Iron and steel	20	83
Auto tires	33	70
Textile products	45	30
Food products	49	14
Leather	50	20
Petroleum	56	20
Agricultural commodities	63	6

At its low point in 1932, industrial production had fallen 47 percent from that of 1929, compared with only one percent decline in agricultural production.⁹ As a result of the drought of 1934 combined with the influence of very low farm prices, agricultural production in 1935 was 9 percent below its 1929 level. By 1937, however, agriculture had recovered, its production in that year being 7 percent higher than that of 1929. In contrast to the sharp decline in agricultural prices, industrial prices in 1932 had declined 23 percent.⁹

A careful analysis of the situation from 1930 to 1939 when we had mass unemployment indicates that:

(1) Had farmers *reduced their production* in 1932 to the same extent as did urban industry *we would have had mass starvation* in most of our larger cities; and

(2) *If prices and wages of those in urban industry during this period had been reduced* to the same extent as those in agriculture, industrial production and living standards of labor, urban employers, and agriculture would have been maintained at a high level and there would have been no big urban unemployment problem.

How Prevent Mass Unemployment in the Future?

What lessons can we learn from the above facts? As I see it American business must now make a definite choice. If it wants to continue our system of free enterprise under a democratic economy, the rigid price policies which characterized some of these industries in the 1930s will have to be thrown out the window and *goods and services offered to consumers year-in and year-out at prices they can afford to pay*. Time does not permit a full discussion of this but consideration may well be given to:

1. *Low-cost housing*, such as \$4,000, \$5,000 and \$6,000 housing proj-

⁹ Yearbooks — U.S.D.A.

ects such as now being undertaken by Henry Kaiser¹⁰ and many other concerns — houses which will rent for \$30, \$40 or \$50 a month. Recently Wilson W. Wyatt, Jr., was appointed expediter by President Truman for the housing program. Mr. Wyatt has announced programs for building 2,700,000 houses during the next two years, 1,200,000 to be built in 1946 and 1,500,000 in 1947.¹¹

The Twentieth Century Fund in its book on American Housing has stated that the first thing necessary was to remove unnecessary restrictions and regulations which prevent low-cost housing.¹²

In what was described as an "unprecedented" action in the construction field the Joint Industry Board of the Electrical Industry in New York City, comprising ten industry and ten labor representatives, signed a no-strike, no lock-out contract for the duration of the housing shortage, which sanctioned use of the most up-to-date technological methods and high-speed labor saving tools.¹³ Several cities on the western coast now permit the construction of prefabricated houses which meet standards of health and safety. About one-fourth of the cities in the country now permit the construction of these low-cost houses. Looking ahead, it is obvious that if some cities permit low-cost housing and others don't — cities with high rents are likely to find a declining population.

To speed up the housing program definite consideration should be given to importing lumber from Russia, Sweden, and other countries in exchange for cotton, machine tools, or other goods which we have or can produce with benefit to our domestic economy. In order to protect the lumber interests, importation of duty-free lumber might be limited, say to 50 percent of our 1940-1943 production and the time of such duty-free imports be limited to five years.

2. *Expansion of farmer cooperatives* which bring about lower costs of goods which farmers buy. Illinois has been a pace-setter in farmer cooperation. Farm cooperatives in Illinois perform a large part in the marketing of livestock, milk, butter, and grains, in providing low-cost insurance, and in the purchase and sale of farm supplies. Wholesale margins for handling petroleum products in Illinois were reduced from 44 percent of the total cost in 1930 to 26 percent in 1944. This 39 percent reduction in handling costs was accomplished entirely aside from the

¹⁰ Kaiser Launches Homes on Mass-Production Program, Champaign News-Gazette, May 10, 1945.

¹¹ Christian Science Monitor, January 12, 1946.

¹² Colean, Miles L., American Housing, Twentieth Century Fund (1944), pp. 329-330.

¹³ Christian Science Monitor, January 28, 1946

15 percent patronage dividend received for many years and resulted from the application of a sound policy in the distribution of oil supplies. Co-operative activity of farmers is one of the most progressive types of free enterprise in this county.

Two probable fields of expansion in the next decade are the cooperative purchase of seed and cooperative distribution of agricultural implements. Studies should be undertaken soon to determine the possibilities of segregating sales from service in the purchase of agricultural machinery. An examination of facts available indicates the possibilities of lowering costs of distributing farm machinery.

In 1929 it took 1,035 bushels of corn to buy a tractor costing \$911.¹⁴ In 1932 it took 3,068 bushels of corn to buy this same tractor which then sold for \$859.¹⁴ Around 40 percent of the total cost of a tractor goes for selling and distribution costs. In looking ahead to a decline in consumer income and to lower farm prices, it is good sense to also look ahead to find out how prices of goods which farmers buy can be reduced at the same time.

3. *Low-cost rail transportation*, such as the one-cent a mile rate proposed by the president of one railroad. Such a rate would make it possible to travel from Boston to Los Angeles for \$30.¹⁵ With improved equipment including full reclining seats for coaches combined with low rates and the two weeks' vacation for workers which is becoming more and more general, this company believes that travel by railroad will be far greater than before the war.

4. *Low-cost recreation facilities*, such as parks, lakes, and mountains. A large segment of our urban population has or is likely to have a 40-hour week. If self-supporting recreational facilities are developed near urban centers they may well provide regular jobs for a million or more workers.

Alleviating Tensions Between Labor, Management and Farmers

Every student of history knows that war brings with it a whole gamut of hates, prejudices, and animosities. Rabble rousers give vent to their spleen by stirring up religious hatreds, race differences, and class rivalry. After our Revolutionary War, many intelligent and useful Americans were driven from their homes by mob violence or the threat of mob violence in such forms as tar and feathers or a ride on a rail because of their actual or supposed sympathies with the British.

¹⁴ Federal Trade Commission: Report on the Agricultural Implement Industry. Concentration and competitive methods. 75th Cong. 3rd Session. House Doc. 702. June 1938.

¹⁵ M. Le Tour. Utopian Era of Travel in United States Forecast as Postwar Prospect. Christian Science Monitor, November 26, 1943.

After the Civil War, carpetbaggers and politicians stirred up intersectional and racial hatreds that still persist. Out of the tensions of World War I the Ku-Klux Klan was revived as well as various other organizations of night riders bent on inciting class hatred and racial dissension. The Overthrow Act of 1919 denying free speech was another indication of class hatred of that era.¹⁶

As World War II progressed, problems in this country became aggravated by the growing intensity of differences between labor, farmers, employers, and government. Tension between labor groups in June 1943 resulted in a race riot in Detroit in which 34 people were killed and a thousand more were wounded.¹⁷ The Philadelphia strike of August 1944 was another indication of these same tensions. These riots are symptoms of internal strife which may occur if millions of war veterans return to an economy which lacks man-sized jobs for them. It is estimated that there will be 5,000,000 people unemployed by the spring of 1946.¹⁸

In World War II American democracy proved its ability to meet a national crisis by the general acceptance of the Selective Service Act of 1940. The ability of the American people to distinguish right from wrong in this crisis has been an outstanding tribute to our system of public education. While subject to minor criticisms, on the whole, the administration of the Selective Service Act through its local committees, has been remarkably good, attesting to the good judgment of the many civilians who were on these committees.

Recognizing the fact that our country faces mass unemployment, increasing concentration of power in the hands of the federal government and increasing tensions between the various groups in our country, the question arises: Are there any remedies which can be put into effect to curb or alleviate these tendencies? If so, what are they and how can such remedies be introduced so as to help to bring about the solution of these problems?

As I see it, the best answer to our question is *Education*. Recently in a printed pamphlet I set down some ideas on this under "Education for Maintaining Full Employment."¹⁹ Some points included in this are summarized as follows:

1. That a national study be made of each major industry, including construction, transportation, mining, each major manufacturing industry,

¹⁶ Stone, Irving, "Clarence Darrow, For the Defense." Garden City Publishing Company, 1941, p. 368.

¹⁷ Lee, Alfred McClung, and Humphrey, Norman Dagmond. Race Riots. The Deyden Press Inc., 1943, p. 2.

¹⁸ United States news. February 22, 1946.

¹⁹ Bartlett, Roland W. "Education for Maintaining Full Employment." Bartlett Foundation, Inc. Champaign, Illinois, March 1945. BF-8.

and each major farm commodity. Recently the Twentieth Century Fund released such a study on American Housing.¹² During the past two years we made studies of the milk industry which have been published in a book entitled "The Milk Industry."²⁰

2. That each major industrial state consider establishing a school of labor and industrial relations within its state university for conducting research, teaching, and extension in this field comparable to that available for agriculture. This type of school was established in 1945 at Cornell University, and at the University of California. Such a school is now in process of organization at the University of Illinois while many other states have introduced plans for broadening their work in labor and industrial relations.

3. That, in order to promote the best interests of such a school and its extension activities, an advisory committee consisting of representatives of labor, urban employers, agriculture, and government be set up in each state to help in establishing policies dealing with an educational program in labor and industrial relations and to assist the University in carrying out this program.

4. That a research subcommittee with a representation similar to the state advisory committee be set up for each industry study, to advise with the director of each research project.

5. That the scope of general university extension in our colleges and universities be broadened to include the teaching of information which will be helpful in maintaining full employment. To this end it is recommended that an industrial relations adviser be appointed to represent the state university in each county having a nonagricultural population of 25,000 or more, smaller counties being grouped to include a minimum of 25,000 nonagricultural people. Presumably assistant advisers would be needed to assist in carrying on the work in some of the larger industrial areas. Agricultural extension should be broadened to include teaching in the field of labor and industrial relations.

6. That an industrial relations committee be appointed for each county or industrial relations area to represent labor, urban employers, and agriculture and to assist in carrying out the educational program for these smaller units in much the same way that the state advisory committee does this on a state basis. Last year such a committee known as the Industrial Relations Committee of Champaign County was organized in Champaign-Urbana.

7. That careful consideration be given to extending on a far broader scale the excellent work already being done in vocational education in our

²⁰ Bartlett, Roland W., "The Milk Industry." The Ronald Press Company, New York City, 1945.

high schools. Along with this, it is recommended that a system of apprenticeships and a course or courses on labor and industrial relations be established in our high schools for the benefit of the six out of every seven students who end their formal education at the high-school level. Such a course or courses might also be included in institutions training teachers in order to equip these future teachers to discuss labor and industrial relations effectively.

R. W. BARTLETT

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹ Survey of Current Business, December, 1942, and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk
Director, Extension Service in
Agriculture and Home Economics

FREE Cooperative Agricultural Extension
Work Acts of May 8 and June 30, 1914

ILL. 8900, 5-46, 8700
Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1930	86	88	112	125	114	116	94	110	98	91
1931	73	65	77	110	84	77	71	93	74	75
1932	65	48	52	96	60	57	60	72	51	58
1933	66	51	56	94	62	68	75	68	54	69
1934	75	65	76	100	73	73	74	79	70	75
1935	80	79	103	101	90	86	85	86	80	87
1936	81	81	107	100	104	109	110	98	93	103
1937	86	86	120	104	108	116	112	107	111	113
1938	79	69	87	98	99	107	109	101	85	89
1939	77	65	81	97	99	107	110	108	100	109
1940	78	68	86	98	107	114	116	117	114	125
1941	87	82	109	103	142	146	140	144	168	162
1942	99	105	140	117	197	200	169	188	245	199
1943	103	123	166	127	251	243	191	239	330	239
1944	104	124	168	132	265	249	189	266	346	236
1945 Feb....	105	127	174	134	312	226	169	274	345	236
Mar....	105	127	174	135	294	249	184	276	342	235
Apr....	106	129	174	135	296	228	169	276	333	231
May	106	130	174	135	293	242	179	274	319	225
June	106	130	175	135	287	227	168	274	315	220
July....	106	129	174	135	282	208	154	...	299	210
Aug....	106	127	174	135	274	201	140	...	267	187
Sept....	105	124	171	136	256	192	141	...	224	169
Oct....	106	127	171	137	261	346	253	...	223	162
Nov....	107	131	173	137	282	332	242	...	223	168
Dec....	107	132	174	138	282	256	186	...	226	164
1946 Jan....	107 ¹¹	130 ¹¹	173	138	281	231	167	...	...	160 ¹¹
Feb....	107 ¹¹	131 ¹¹	174	139	...	...	...	...	...	154 ¹¹

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			April 1945	Current months		
	1935-39	1944	1945		Feb.	Mar.	Apr.
Corn, bu.	\$.66	\$1.07	\$1.07	\$1.06	\$1.06	\$1.09	\$1.10
Oats, bu.	.31	.74	.68	.69	.74	.76	.77
Wheat, bu.	.86	1.54	1.58	1.58	1.64	1.66	1.66
Barley, bu.	.62	1.16	1.09	1.06	1.13	1.13	1.17
Soybeans, bu.	.90	1.91	2.09	2.10	2.10	2.10	2.10
Hogs, cwt.	8.52	13.47	14.25	14.30	14.30	14.40	14.40
Beef cattle, cwt.	7.88	11.89	13.12	14.00	13.30	13.90	14.50
Lamb, cwt.	8.36	13.52	13.77	14.60	13.60	14.10	15.20
Milk cows, head	58.00	124.50	125.50	123.00	130.00	134.00	139.00
Veal calves, cwt.	8.66	13.32	14.22	14.60	14.60	14.90	15.20
Sheep, cwt.	3.58	5.67	6.38	7.30	6.60	6.60	6.90
Butterfat, lb.	.27	.49	.48	.49	.48	.49	.48
Milk, cwt.	1.68	3.02	2.95	2.90	3.05	3.05	3.00
Eggs, doz.	.19	.31	.35	.31	.30	.30	.29
Chickens, lb.	.15	.24	.25	.25	.23	.23	.24
Wool, lb.	.25	.42	.44	.41	.43	.41	.43
Apples, bu.	1.08	3.11	2.99	2.65	4.30	4.30	4.30
Hay, ton.	9.39	17.65	17.72	18.50	16.00	16.00	15.00
Potatoes, bu.	.91	1.83	2.06	2.30	1.80	1.80	1.70

¹⁻¹² For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

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CORN ON ILLINOIS FARMS

The current feed grain situation in Illinois is well documented in the farm business and production records kept by Illinois farmers. From 1,657 such records kept by cooperators in the Farm Bureau Farm Management Service in 54 counties in northern Illinois we have drawn the following facts concerning the production, utilization and stocks of corn for the year 1945.

1945 corn production. The average farm in the Farm Bureau Farm Management Service in 1945 produced 4,751 bushels of corn from 88 acres of land, representing a yield of 54 bushels per acre and a utilization of 38 percent of the tillable land area. Corn production on these farms varied from an average of 1,700 bushels per farm in Jo Daviess County to 7,222 bushels per farm in Piatt County. Three factors are primarily responsible for this range in production: (1) the size of farm, (2) the proportion of land cropped to corn, and (3) the yield per acre. Corn yields in 1945 varied from an average of 37 bushels per acre in Mason County to 66 bushels in Piatt County. The proportion of land in corn is lowest in northwestern Illinois, and highest on the level land of our cash grain areas in central Illinois.

The balance sheet on corn. The 1,657 farms in this study began the year with an average inventory of 3,786 bushels of corn; they ended the year with an average of 3,625 bushels, a decrease of 4 percent. They purchased an average of 879 bushels of corn during the year, making a total available supply of 9,416 bushels per farm (see Tables 1 and 2). Of this amount 3,543 bushels were fed on the farm; 2,175 bushels were sold; and 3,625 bushels were carried over into 1946.

It is interesting to note that while 58 percent of these farms are located in the cash grain areas of Illinois (see Table 2) they fed an amount of

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

TABLE 1.—THE BALANCE SHEET ON CORN FOR 1945 ON 1,657 ILLINOIS FARMS
IN THE FARM BUREAU FARM MANAGEMENT SERVICE

Item	Bushels	Item	Bushels
On hand Jan. 1, 1945.....	3,786	On hand Jan. 1, 1946.....	3,625
Bought during the year.....	879	Sold during the year.....	2,175
Produced in 1945.....	4,751	Fed to livestock.....	3,543
		Shrinkage.....	73
Total corn available.....	9,416	Total accounted for.....	9,416

corn equal to three-fourths of their 1945 production. Sales, on the other hand, averaged less than half of the 1945 production.

Variations in stocks. The average inventory of corn at the beginning of 1945 varied from 1,427 bushels per farm in Cook County to 6,420 bushels in Warren County. Stocks at the end of the year varied from 1,014 bushels per farm in Jo Daviess County to 5,758 bushels in Piatt County. Changes in the amount of corn on hand are largely a reflection of changes in the level of yields from 1944 to 1945 (see Table 2). A very short crop in Area 4b in 1944 followed by above average yields in 1945 resulted in maximum increases in this area. Similarly, low yields combined with a high rate of feeding served to reduce supplies of corn in Western and Northwestern Illinois by 30 to 40 percent (see Figure 1).

This shrinking of corn supplies in the major livestock areas is likely to result in a more drastic curtailment of livestock feeding than if the shrink had occurred elsewhere. Another fact of similar consequence is that even though yields and inventories in the frost-damaged areas were recorded in terms of sound corn, its feeding value is still less according to subsequent feeding experience.

Level of livestock feeding. On a per farm basis the amount of corn consumed by livestock was not much greater in the dairy and mixed livestock areas than in the cash grain areas because of the differences in the size of farms. However, in 17 out of the 27 counties in farming type areas 1, 2, and 3 the amount of corn fed averaged more than 4,000 bushels per farm; and in 17 counties in the same areas the corn consumed by livestock amounted to more than the 1945 production.

While these figures are significant they shall have more meaning in the future after the influence of several years' changes have been studied, and after which predictions can be more safely made from a given set of conditions. It is apparent, however, that farmers have not been hoarding corn. With stocks in the major feeding areas well below a year ago the government purchases in the surplus grain areas can mean nothing short of a major reduction in the amount of corn fed to livestock before the 1946 crop is harvested.

TABLE 2.—PRODUCTION, UTILIZATION, AND STOCKS OF CORN PER FARM BY COUNTIES FOR 1,657 FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE, ILLINOIS, 1945

Type-of-farming areas and counties	Num- ber of farms	Corn yields bu. per acre		Bushels of corn per farm				
		1944*	1945	Pro- duced in 1945	On hand			Fed to live- stock in 1945
					Jan. 1, 1945	Jan. 1, 1946	% change	
AREA 1 — Dairy and Truck								
Boone.....	15	69	48	2742	2970	2321	-22	4132
Cook.....	5	45	42	2158	1427	1320	- 8	2262
DuPage.....	15	54	45	2106	1837	1798	- 2	1838
Kane.....	40	58	56	4097	2658	3125	+18	5391
Lake.....	12	51	41	2470	1816	1952	+ 8	1817
McHenry.....	29	59	53	2144	1799	1778	- 1	1881
AREA 2 — Mixed Livestock								
Carroll.....	12	68	45	2053	1878	1464	-22	2541
DeKalb.....	39	62	55	5310	4219	3995	- 5	5290
Jo Daviess.....	28	65	42	1700	1993	1014	-49	2918
Lee.....	31	68	56	4901	4248	3708	-13	4175
Ogle.....	41	70	49	2829	3036	2115	-30	3507
Rock Island.....	20	64	56	4094	4035	3090	-23	4012
Stephenson.....	52	68	51	2208	2273	1550	-32	2805
Whiteside.....	32	66	52	3928	3326	2842	-15	4013
Winnebago.....	30	61	48	2908	2996	2096	-30	3152
AREA 3 — Livestock and Grain								
Bureau.....	23	71	56	5218	5199	3430	-34	7174
Fulton.....	19	54	51	3049	3066	1978	-36	5299
Henderson.....	11	64	51	4575	5758	4250	-26	8187
Henry.....	36	63	49	4600	5372	3670	-32	6833
Knox.....	24	60	49	5014	6240	4494	-28	5386
McDonough.....	22	60	43	4347	6030	3632	-40	7284
Marshall-Putnam.....	28	64	54	5683	5409	4520	-16	7902
Mercer.....	17	60	46	4389	4564	3169	-31	5538
Peoria.....	27	62	52	4336	3747	3434	- 8	4208
Stark.....	21	63	48	5301	5622	3987	-29	4151
Warren.....	12	66	51	5920	6420	3780	-41	5799
AREA 4A—Cash Grain								
Champaign.....	61	54	60	5668	3715	4579	+23	2117
Coles.....	22	55	55	4751	3322	3055	- 8	2223
DeWitt.....	29	42	64	5864	2955	4030	+36	2397
Douglas.....	25	55	59	5581	3327	3953	+18	1963
Edgar.....	23	55	56	4672	3916	3847	- 2	3763
Ford.....	44	54	46	5521	4859	4301	-12	3032
Grundy.....	19	58	54	5604	5351	4829	-10	2357
Iroquois.....	52	47	51	4490	2970	3383	+14	2421
Kankakee.....	32	51	51	4866	3646	3440	- 6	2179
Kendall.....	19	61	58	6139	4634	4314	- 7	5514
LaSalle.....	49	64	49	5963	5593	4759	-15	3686
Livingston.....	63	68	51	5107	4402	4222	- 4	1803
McLean.....	78	59	59	6916	5126	5322	+ 4	4076
Moultrie.....	28	47	53	4827	3215	2985	- 7	2361
Piatt.....	21	42	66	7222	4481	5758	+28	2678
Vermilion.....	46	54	57	5671	4120	4303	+ 4	2723
Will.....	32	52	52	4257	3145	3408	+ 8	2152
Woodford.....	60	63	56	5538	4722	4246	-10	3453
AREA 4B — Cash Grain								
Cass.....	26	43	54	4211	3485	3832	+10	3832
Logan.....	41	42	65	6082	3252	4792	+47	2716
Macon.....	41	42	60	5368	2797	3725	+31	2103
Mason.....	10	43	37	3435	1975	2754	+39	1464
Menard.....	23	42	56	4793	2280	3490	+53	2880
Sangamon.....	42	31	60	5215	2024	3877	+92	3637
Tazewell.....	70	59	62	5219	3757	3884	+ 3	3257
Morgan ^b	39	46	58	4696	2870	3641	+27	3730
Clark ^c	21	35	41	2387	2792	1875	-33	2789
All Farms.....	1657	..	54	4751	3786	3625	- 4	3543

^a Average yields of farm account farms in 1944. Taken from July-August, 1945, Illinois Farm Economics.

^b Morgan County is in Farming Type Area 5, the General Farming Area.

^c Clark County is in Farming Type Area 7, the Mixed Farming Area of Southern Illinois.

ably represented part or all of the landlord's share of the crop on rented farms. The average cost of purchased corn was \$1.05 per bushel, with a range from \$.97 to \$1.08 per bushel in the price paid between counties.

F. J. REISS

SHOULD FARM WAGES BE INCLUDED IN CALCULATING PARITY?

Proposals to include the cost of farm labor in calculating parity prices have often been made in Congress in recent years. A rider to this was recently added to a pending Minimum Wage Bill. What effect would including farm wages have on parity prices? At this time it would raise them and over the years it would make them more variable. A chief criticism now directed at the parity price formula is that the use of a base period, 1909-1914, now 30 years old, creates bad relationships among the parities for individual products. The inclusion of wage rates in the parity formula would not correct this. Moreover, farm prices are now in general at favorable levels. A general increase in parities now used as a minimum standard for ceiling prices of farm products would cause an unfavorable reaction on the part of the general public which is sensitive to living costs.

To calculate a parity price, an average price for a base period and a "parity multiplier" are used. For most Illinois farm products the average of 1909-1914 is used as a base. The present "parity multiplier" is an index which measures changes in the prices of goods used by farmers as well as in interest and property tax payments. To illustrate: the U. S. farm price of corn averaged 64.2 cents in 1909-1914. The "parity multiplier" now stands at 178 percent of 1909-1914. Multiplying 64.2 cents by 1.78, we get 114 cents as the present parity price of corn. It is apparent from the method of calculation that a "parity price" moves up and down with the costs of the items which enter into the multiplier.

How including farm wages in the multiplier would affect parity is shown by Figure 1. In January 1946 an index of farm wage rates stood at 347 percent of 1910-1914. If the present "multiplier" is given a weight of 4 and farm wages a weight of 1, the revised "multiplier" would be 212, or approximately 20 percent higher than the present "multiplier" of 178. The use of this revised multiplier would raise parity prices by roughly one-fifth. During 18 of the 32 years from 1915 to 1946 including farm wages would have raised parity and in the other 14 it would have lowered it. Farm wage rates are more sensitive to changes in farm prices than are the prices of the items in the present multiplier. So the inclusion of farm wages in the parity formula would lower parity prices in depressions and raise them in periods of farm prosperity and thus would make parity prices more sensitive to the factors that affect farm prices. This change

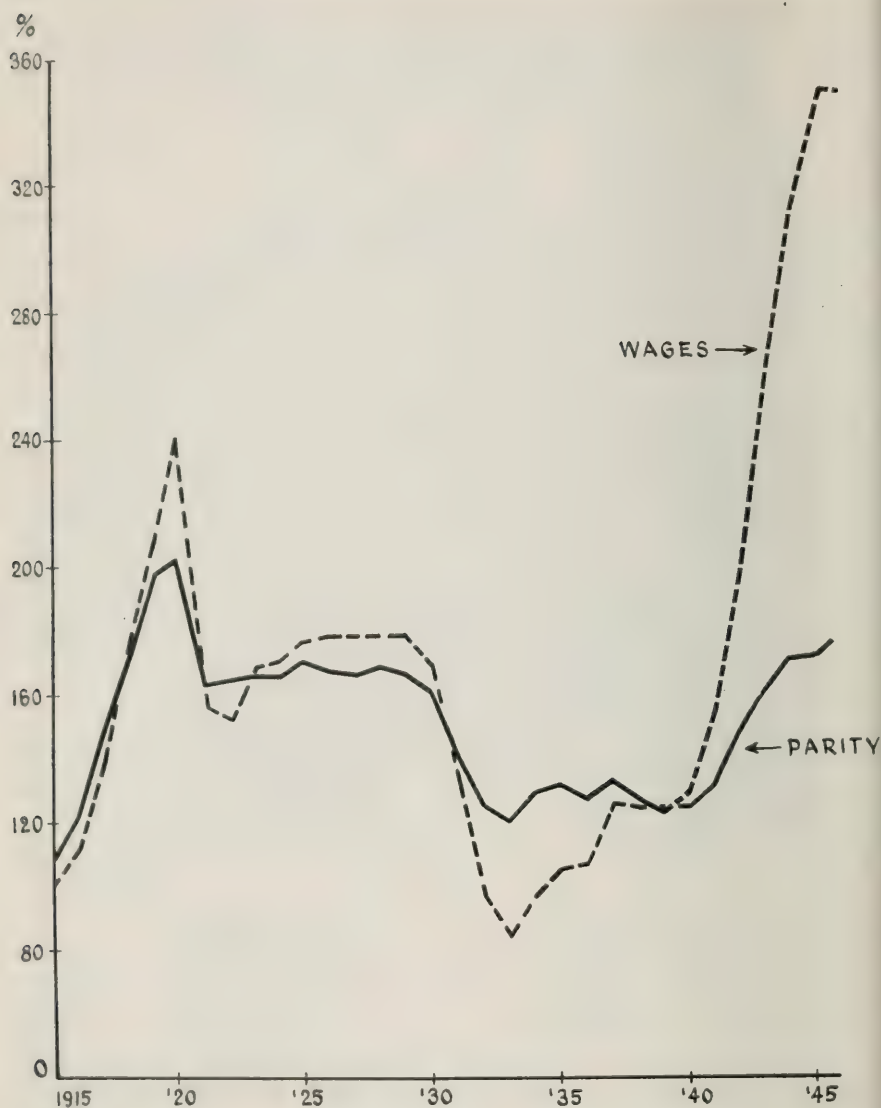


FIG. 1.—FARM WAGES AND PARITY MULTIPLIER, 1915-1946
(1909-1914 = 100)

Farm wages vary more than prices of items in the present parity multiplier. Wages are now nearly twice as high as the parity multiplier in comparison with the 1909-1914 average.

would by itself improve the parity formula. But including farm wages at this time would increase the level of parity without correcting its present basic defect of attempting to use prices which reflected the relationships between individual products which prevailed more than 30 years ago as standards.

Changes in the base years for calculating the parity formula. Two suggestions for changing the parity formula are: (1) altering the multiplier, as by including farm wages; (2) using a more recent base than 1909-1914. It should be noted that while for certain products some other base is now used, for most Illinois farm products, the 1909-1914 base is still the standard. A 1919-1929 base is used for milk prices in each of the markets in which Federal Milk Marketing orders or agreements are in effect. Would a more recent period provide for better relationships between individual parities? The 5-year period before World War II, 1935-1939, has been suggested but farm prices then averaged below parity and to many people it is not acceptable. How would 1935-1944 be? This would include 5 prewar years and 5 war years. During these 10 years prices of farm commodities averaged 130.7 percent of 1909-1914, the present parity multiplier averaged 137.9, and farm wages averaged 164.8 percent. If the average relationship between farm prices and farm costs in the years 1935-1944 is to be the same as in 1909-1914, individual prices would have to be raised by multiplying by $\frac{137.9}{130.7}$ or by 1.055. What the use of this base would do to parities for individual commodities can be seen in Table 1.

The hog-corn price ratio with present parities is $\frac{\$7.27}{.642}$ or 11.3. For the

TABLE 1.—COMPARATIVE U. S. FARM PRICES 1909-1914 and 1935-1944 AND PARITY PRICES BASED ON AVERAGES FOR THESE TWO PERIODS FOR 14 FARM PRODUCTS

	Base period	Average price	Crop year	Weighted averages	Calculated parities ^b	Present parities ^a
Wheat.....	1909-14	\$.884 (bu.)	1934-43	\$.899	\$ 1.22	\$ 1.57
Rice.....	1909-14	.813 (bu.)	1934-43	.998	1.36	1.45
Corn.....	1909-14	.642 (bu.)	1934-43	.749	1.02	1.14
Oats.....	1909-14	.399 (bu.)	1934-43	.396	.54	.71
Soybeans.....	1909-14	.96* (bu.)	1934-43	1.121	1.53	1.71
Hay.....	1909-14	11.87 (ton)	1934-43	9.83	13.39	21.10
Cotton.....	1909-14	12.4¢ (lb.)	1934-43	12.8¢	17.43¢	22.07¢
Potatoes.....	1919-28	\$ 1.12 (bu.)	1934-43	\$.779	\$ 1.06	\$ 1.30
Calendar years						
Hogs.....	1909-14	\$ 7.27 (cwt.)	1935-44	\$ 9.58	13.05	12.90
Beef cattle.....	1909-14	5.42 (cwt.)	1935-44	8.22	11.20	9.65
Eggs.....	1909-14	21.54¢ (doz.)	1935-44	24.5¢	33.4¢	38.3¢
Chickens.....	1909-14	11.4¢ (lb.)	1935-44	17.2¢	23.4¢	20.3¢
Butterfat.....	1909-14	26.3¢ (lb.)	1935-44	34.6¢	47.1¢	46.8¢
Milk.....	1909-14	\$ 1.60 (cwt.)	1935-44	\$ 2.20	\$ 3.00	\$ 2.85

^a Derived price from 1935-1939 relationship.

^b These are calculated from the 1934-1943 or 1935-1944 prices shown in column 4 adjusted so that averages of all farm products bear the same relationship to present "multiplier" as in 1909-1914.

^c February 15, 1946.

more recent prices shown in Table 1 the hog-corn ratio would be $\frac{\$9.58}{.749} = 12.8$. The price of hogs was about one-eighth higher in relation to the price of corn in 1935-1944 than in 1909-1914. The cattle-corn ratio would be raised even more: from 8.4 to 11.0. Beef cattle were underpriced in the original parity period. The butterfat-corn ratio would be changed from .41 to .46; the egg-corn ratio would be slightly reduced from .335 to .327; the milk-corn ratio would be raised from 2.49 to 2.94; the chicken-corn ratio would be changed from .18 to .23. Thus hogs, beef cattle, fluid milk, butterfat and chicken prices were higher relative to corn while eggs were slightly cheaper in 1935-1944 than in 1909-1914.

Reflecting its use in the production of livestock and livestock products, the price of corn has risen relative to the prices of both wheat and cotton -- two export crops. The wheat-corn ratio was 1.38 in 1909-1914 and 1.20 in 1934-1943. The cotton-corn ratio decreased from .19 to .17 or by more than 10 percent. This probably explains the tendency to produce more feed, chiefly winter oats, in adapted sections of the south. Between the two periods the wheat-cotton ratio changed from 7.13 to 7.02, a very moderate change. The wheat-rice ratio decreased from 1.09 to .90. Rice has risen relative to wheat. The oats-corn ratio was .62 in 1909-1914 and was .53 in the later period. Oats became cheaper relative to corn, reflecting loss of the special market for oats as horse feed since the 1909-1914 period. The comparisons between corn and soybean prices mean little as a comparable price for soybeans was established at 1.5 times the parity price of corn, the 1935-1939 relationship. During the war a ratio of close to 2.0 between prices of soybeans and corn was found necessary to expand soybean production. The hay-corn ratio of 18.5 in 1909-1914 had declined to 13.1 in 1934-1943, reflecting the decline in numbers of horses over the 25-year period.

These changes in price ratios indicate that comparing 1935-1944 with 1909-1914 the market had lowered the price of cotton, wheat, oats, hay and eggs relative to the price of corn, raised the price of hogs, cattle, milk, butterfat, and chickens relative to the price of corn, left the prices of wheat and cotton in about the same relative position and raised the price of rice relative to that of wheat.

These recent price averages are not used to suggest that the 10-year period, 1935-1944, should be used as the basis for individual price parities, but merely to illustrate how relationships between prices of different farm products have been altered over the 30-year period. Including another factor such as farm wages in the parity multiplier would not correct the present basic defect in parity, the use of out-of-date relationships among individual parities.

To convert the price of corn shown in Table 1 to a parity price for

1946, we would need to multiply 74.9 cents \times 1.055 to allow for the average deviation of all farm prices from the parity standard in 1935-1944. This would be 79 cents. Multiplying 79 cents by $\frac{178}{138}$ or by 1.29 to allow for the rise in the parity multiplier from the average of the 1935-1944 period would give a parity price of corn of 102 cents for February 1946 compared to 114 cents under the present formula. For wheat the calculated parity would be 122 cents compared to the present parity of 157 cents. For cattle the parity price would be \$11.20 compared to the present parity of \$9.65 per 100 pounds. The effect would be to lower parities for corn, wheat, cotton, eggs and to raise parities for hogs, cattle, milk and butterfat. These new parities would better reflect the proper relative prices between individual products than does the 1909-1914 standard. The arithmetic can be shortened by multiplying the 1935-1944 prices shown in Table 1 by 1.362, the multiplier necessary to adjust for the amount all farm prices averaged below parity in 1935-1944 and for the rise in the prices of multiplier factors since that period.

Such an index would of course get out-of-date, as changes in cost and demands will continue to alter price relationships in the future as they have in the past. Use of any fixed set of parities in supporting postwar prices will lead to difficulties as was pointed out by Norton and Working in the December-January 1946 issue of this publication. If individual parities are to be used, however, the formula for their determination should be modernized. Any legislative changes made in the parity formula should be directed to that end.

L. J. NORTON

HOW GRAIN FARMERS AND LIVESTOCK FARMERS MAY REALIZE MAXIMUM RETURNS FROM GRASSES AND LEGUMES GROWN FOR SOIL IMPROVEMENT AND EROSION CONTROL¹

A good soil fertility program calls for at least 20 to 25 percent of the tillable land in clover or alfalfa — or for $33\frac{1}{3}$ to 50 percent of the land seeded to sweet clover to be plowed under for corn. A good erosion control program on land subject to erosion calls for legume-grass mixtures on at least 25 percent of the tillable land that is subject to slight sheet erosion. It calls for legume-grass mixtures $33\frac{1}{3}$ percent, 40 percent, 60 percent, and even 80 percent of the time on land subject to more or less serious erosion. All thinking people are agreed that a sound soil fertility and erosion control program is an essential part of any postwar farm program. It follows that realizing maximum returns from legumes and grasses grown for soil improvement and erosion control is a most important and

¹ Paper presented on Farm and Home Week program, February 14, 1946.

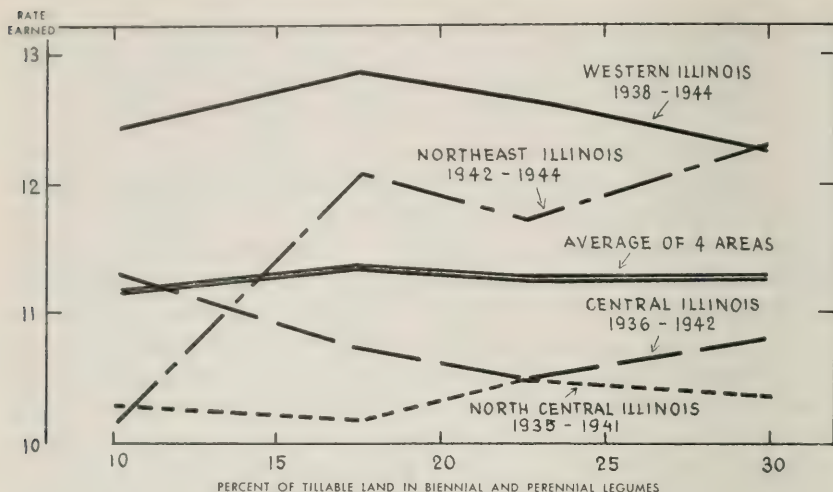


FIG. 1.—NET EARNINGS OF FARMS WITH DIFFERENT AMOUNTS OF BIENNIAL OR PERENNIAL LEGUMES

urgent postwar problem for corn-belt agriculture. Since the solution of this problem is an individual farm matter, it is a most important and urgent postwar problem for the individual farmer, whether he be a landowning operator, a tenant, or a landlord.

Farm records show that in cash grain areas year-to-year earnings tend to be higher where less than 15 percent of the tillable land is maintained in clovers and alfalfa than where more land is kept in those crops. (See Figure 1.) In general livestock areas, year-to-year earnings tend to be higher where from 15 to 25 percent of the tillable land is kept in legumes and grasses. In the Chicago dairy area during the three years 1942, 1943, and 1944, the most profitable farms were those that had an average of 25 percent or more of the tillable land in legumes and grasses. The most profitable of 150 farms included in that study was a dairy farm that had 45 percent of its tillable land in alfalfa and sweet clover for hay and pasture.

Short-time records show the temporary advantage of less land left down in legumes. (See Figure 2.) When either grain farms or livestock farms are considered alone in areas where both grain farming and livestock farming prevail, year-to-year earnings tend to be higher on farms with the smaller acreages of legumes and grass on the tillable land. On grain farms, land in legumes and grasses is "idle land" unless a seed crop is obtained, and the higher grain yields of future years do not affect the current year's income. On general livestock farms, the income from hay and pasture land is usually less than from land planted to feed grains on

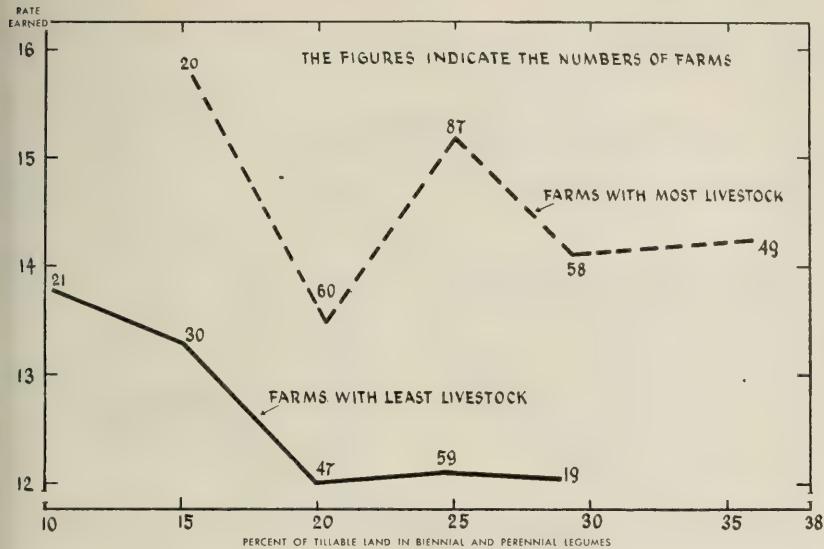


FIG. 2.—NET EARNINGS ON FARMS WITH DIFFERENT AMOUNTS OF BIENNIAL AND PERENNIAL LEGUMES. CENTRAL, NORTH CENTRAL, AND WESTERN ILLINOIS — 1940, 1941, AND 1942

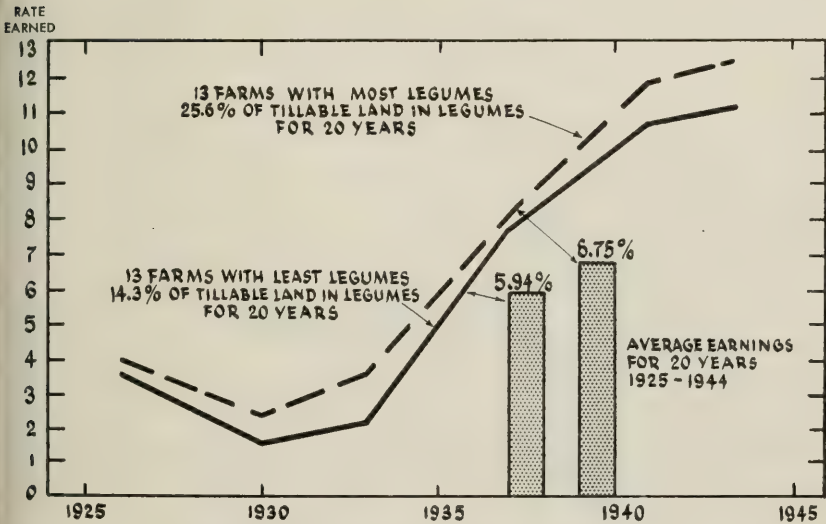


FIG. 3.—NET EARNINGS ON FARMS WITH DIFFERENT AMOUNTS OF LEGUMES¹

¹ Continuous Records on 46 Farms in Livingston, McLean, Tazewell, and Woodford Counties, 1925 to 1944.

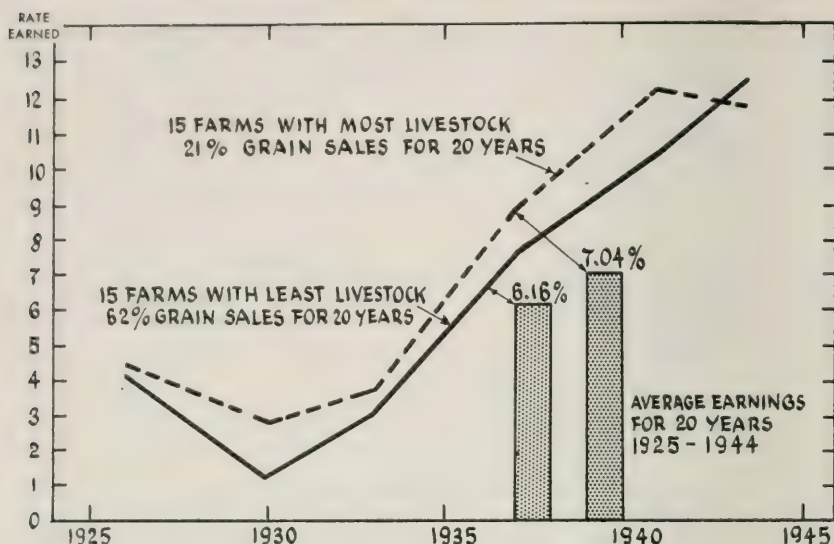


FIG. 4.—NET EARNINGS ON FARMS WITH DIFFERENT AMOUNTS OF LIVESTOCK¹

the same farms, and here, too, the higher grain yields of future years do not affect the current year's income.

Long-time records show the advantage of more legumes. Of 46 farms in Livingston, McLean, Tazewell, and Woodford Counties on which records were obtained during each of the 20 years 1925 to 1944,

HOGS	HAY AND PASTURE - 10%		GRAIN - 90%	
FEEDER CATTLE	HAY AND PASTURE - 28%		GRAIN-72%	
DAIRY CATTLE	HAY AND PASTURE - 66%		GRAIN-34%	
BEEFCOWHERDS	HAY AND PASTURE - 78%		GRAIN-22%	
NATIVE SHEEP	HAY AND PASTURE - 90%		GRAIN-10%	

FIG. 5.—RELATIVE ACREAGES OF GRAIN AND OF HAY AND PASTURE UTILIZED BY DIFFERENT KINDS OF LIVESTOCK²

¹ Continuous Records on 46 Farms in Livingston, McLean, Tazewell, and Woodford Counties, 1925 to 1944.

² Based on Yields of Crops and Rations Fed on 1,035 Farms Enrolled in the Farm Bureau Farm Management Service in 1943. (See *Illinois Farm Economics*, January and February, 1945.)

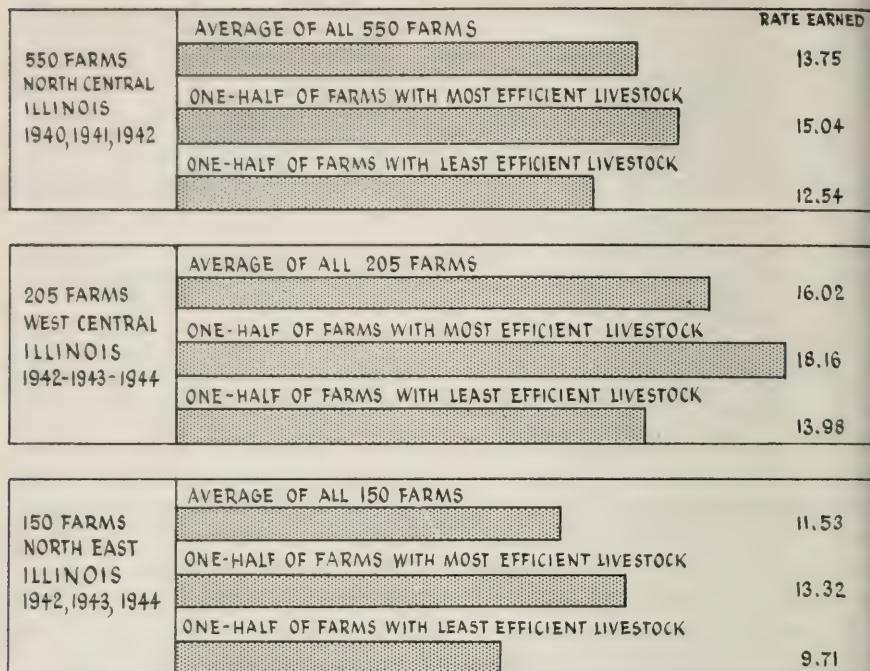
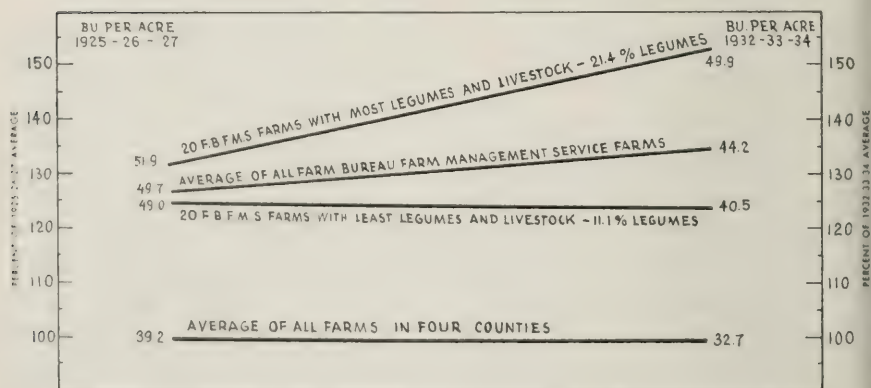
the 13 that had the largest percentage of tillable land in legumes throughout the period were consistently more profitable than the 13 farms that had the least legumes on tillable land. (See Figure 3.)

Well-handled livestock makes good use of legumes. On the basis of the approximate yields of crops and the actual rations used on 1,035 farms enrolled in the Farm Bureau Farm Management Service in 1943, if all crops were utilized as feed, hogs would consume the hay and pasture grown on 10 percent of the land; feeder cattle, 28 percent; dairy cattle, 66 percent; beef cow herds, 78 percent; and native sheep, 90 percent. (See Figure 5.)

Long-time earnings of livestock farms were better than earnings of grain farms. (See Figure 4.) Of the 46 long-time record farms in Livingston, McLean, Tazewell, and Woodford Counties, the 15 that were most nearly livestock farms (only 21 percent of income from grain) consistently earned more than the 15 farms that were most nearly grain farms (62 percent of income from grain) except during the two years 1943 and 1944, when the livestock farms fell below the grain farms. For the entire period, the livestock farms earned an average of 88 cents more per year for each \$100 invested in the business than the grain farms earned. This amounted to about \$500 per farm per year, or \$10,000 per farm for the 20 years in favor of the livestock farms.

Good soil conservation programs increase the productivity and the capital value of land. Five of the 46 long-time record farms in Livingston, McLean, Tazewell, and Woodford Counties increased their average corn yields from 48 bushels per acre per farm during 1925, 1926, and 1927 to 75 bushels per acre per farm during 1940, 1941, and 1942. This average increase of 27 bushels per acre was about 12 bushels more than the average increase on all 46 farms. Long-time records show that for each bushel of corn per acre that a farm produces above the average yield, the productive value of the whole farm is increased by about \$4.00 per acre. Therefore, the five farmers not only increased the future earning power of their farms, but they increased the capital value of the farms by nearly \$50 per acre. The one farm that increased corn yields most adopted a four-year rotation of corn, corn, oats, and clover (mostly sweet clover and alfalfa) one or two years before the 20-year period began. The others had similar rotations on the parts of their farms devoted to livestock and made more than common use of sweet clover plowed under at the end of the first year on land not included in the livestock system. Some of these farms sold more grain than livestock.

Legumes and livestock increase yields of corn and capital value of land. Of 57 farms on which records were obtained during the 10 years 1925 to 1934, the 20 that kept the most land in legumes (21.4 percent) and

FIG. 6.—NET FARM EARNINGS AND LIVESTOCK EFFICIENCY¹FIG. 7.—CORN YIELDS AS RELATED TO THE AMOUNTS OF LEGUMES AND LIVESTOCK²¹ Based on Records of Farms in the Farm Bureau Farm Management Service.² Adapted from Illinois Bulletin 444, "Farm Practices and Their Effects on Farm Earnings."

SMALL GRAIN WITHOUT CLOVER (561 FIELDS)	Increase for Legumes	
	Bu. per acre	Bu. per acre
	47.0	.0
SMALL GRAIN WITH RED CLOVER (132 FIELDS)	47.5	.5
SMALL GRAIN WITH SWEET CLOVER (364 FIELDS)	52.0	5.0
RED CLOVER USED FOR HAY (156 FIELDS)	52.4	5.4
RED CLOVER USED FOR PASTURE (131 FIELDS)	54.0	7.0
SWEET CLOVER USED FOR PASTURE (321 FIELDS)	57.7	10.7
ALFALFA USED FOR HAY (50 FIELDS)	56.0	9.0

FIG. 8.—YIELDS OF CORN FOLLOWING LEGUMES. AVERAGES OF FOUR YEARS, 1929-1932¹

fed the most livestock increased corn yields by an average of 3.5 bushels per acre compared with the average of all record-keeping farms. (See Figure 7.) This result meant an increased capital value of about \$14 per acre during the 10 years. The 20 farms that kept the least land in legumes (11.1 percent) and fed the least livestock decreased corn yields an average of three bushels per acre compared with all record-keeping farms: relative to all record-keeping farms their farms decreased in value about \$12 per acre during the 10 years. All record-keeping farms increased their average corn yields by one bushel per acre when compared with all farms in the area.

The most profitable farms are livestock farms with well-handled livestock. In areas of mixed grain farming and livestock farming, as well as in more strictly livestock areas, livestock farms with well-handled livestock always earn more than the average farms. However, livestock farms with poorly handled livestock are always less profitable than the average farms. (See Figure 6.) If livestock is kept to utilize the legumes and grasses needed for soil improvement and erosion control, it must be well handled or the current farm earnings will be lower than if grain farming without the use of sufficient legumes and grasses is followed. Legumes and poorly handled livestock may help to build up the capital value of land or its future earning power, but it will be at the expense of current earnings.

Sweet clover and alfalfa prove to be the best soil-building legumes.

¹ From Illinois Bulletin 444, "Farm Practices and Their Effects on Farm Earnings."

Records kept on many hundreds of fields of good corn-belt land on farms in north-central Illinois during the four years 1929 to 1932 show that corn following small grain with sweet clover seeded and plowed under for the corn yielded an average of 5.0 bushels per acre more than corn following small grain without any clover. Corn following red clover cut for hay yielded 5.4 bushels more; following red clover pastured, 7.0 bushels more; following sweet clover, pastured, 10.7 bushels more; and following alfalfa, 9.0 bushels more than corn following small grain without clover. As an eight-year average corn following alfalfa yielded as well as corn following sweet clover. (See Figure 8.)

Practices Suggested by Analysis of Farm Records

1. Test all soils and apply limestone, phosphate, or potash where any or all are needed to grow legumes or grain successfully.

2. On land not subject to any erosion, where immediate maximum earnings are imperative and where strictly grain farming is followed, sow sweet clover in all small grain and plow it under for corn the following year. Rotations of corn, soybeans, and small grain; corn and oats, or, on rich bottom land, corn, corn, and oats, are suggested. These rotations may be followed on detached areas of livestock or mixed farms where it is not convenient to grow hay or pasture. While such rotations may be profitable from year to year, they cannot be expected to build up the producing power or the capital value of the land as well as rotations in which 20 to 25 percent or more of the land is left in good soil-building legumes.

3. On relatively good corn land subject to moderate erosion, where grain farming is practiced, landowners may profitably let the land stand over in a mixed clover or alfalfa and grass crop every fourth year. During some years seed crops may be obtained. Increased yields of grain crops obtained in future years and increased capital value of the land will compensate landowners for the immediate loss sustained because of the smaller acreage of grain grown. Tenants or owner-operators on such farms may profitably keep enough well-handled forage-consuming livestock to utilize most of such legumes and grasses for feed. Some very profitable record-keeping grain farms keep beef cow herds or sheep, buy stocker cattle or feeder sheep, or, if the farm is small, have dairy cows to utilize such forages. Landlords may wisely provide the necessary water, fencing, and shelter for such livestock. The increased production of grain and the capital value of the land should make such investments profitable.

4. On all lands subject to serious erosion, any sound long-time program calls for the use of mixed legumes and grasses from 25 percent of the time on the best land to 80 to 100 percent of the time on steep slopes and on certain soil types. Thousands of farms in the northeast 15 to 20

counties of Illinois have more or less land on which there was naturally a layer of very good topsoil underlaid with a soil that is almost wholly unproductive after the topsoil has been allowed to wash off. Much greater use of legumes and grasses on such lands than has been made during the past 50 to 75 years seems imperative if the soil is to be conserved for future use as farm land.

5. Sound soil fertility and erosion control programs combined with careful systems of livestock farming appear to be satisfactory solutions for profitable future farming on all lands subject to serious erosion, especially those subject to more or less complete exhaustion if erosion is allowed to continue unchecked.

Farm records show that where livestock is adapted to the land-use program and where the livestock is carefully managed, the legumes and grasses necessary for a sound soil fertility and erosion control program may bring in a return that compares favorably with that from the land in grain. Under such conditions, erosion may be checked and finally controlled, the productive level of the soil can be raised, and the capital value of the land restored to a high level. In the future, thinking landlords will be inclined to place their farms in the hands of tenants who have proved their ability to handle livestock efficiently.

Suggested steps in a sound farm plan for the large areas of the state where one-fourth or more of the tillable land needs to be kept in legumes and grasses are: (1) Test all soils for needs for limestone, phosphates, and potash. (2) Develop a sound land use, soil fertility, and erosion control program based on well-known principles. (3) Develop a livestock program to make use of the legumes and grasses as well as more or less of the grain grown under the land-use program. (4) Study and practice the art of hay-making and of livestock production in order to become efficient in converting roughages as well as grain into salable livestock products. (5) Constantly study markets and marketing in order to produce the quality of product at the time and in the quantity for which the best returns may be obtained.

M. L. MOSHER

ILLINOIS LAND PRICES ARE HIGH

Recent sale prices of farm land in Illinois should stand as a warning to prospective farm buyers. With many sales reported at \$350 an acre or more, and an occasional sale at \$400 per acre there is every indication that we are facing a land price situation similar to that following the first World War.

It was just 26 years ago this May that the prices of farm products started the rapid decline which brought disaster to many farmers who had

recently purchased land. Some farmers who made sizeable payments on land purchased in the spring of 1920 never took possession of the land the following March. Others who had moved to their newly-purchased farms in 1918-1920 were unable to meet even the interest payments on their mortgages.

It was just 13 years ago that many of the best farms in Illinois changed hands at prices less than one-third and frequently at only one-fourth of the price they had brought in 1919-1920. Many farmers who had taken on heavy debts at that time were forced by the price collapse of the early 30's to give up, after more than ten years of effort, the farms they had struggled to pay for. Although large numbers of farmers throughout the United States were tided over until prices began to improve, by debt extension agreements reached through the efforts of the county voluntary farm debt adjustment committees, this chain of events should serve as a lesson to prospective land purchasers. Most farmers who struggled with debts for years have been satisfied to use the present opportunity to liquidate their debts and play safe by not assuming another heavy indebtedness.

The improved prices and large production from farms during the war years have made possible the accumulation by many farmers of sizeable savings, but people tend to forget how short-lived farm prosperity has been. These savings have been possible partly because normal replacements of farm machinery, farm buildings, and other farm equipment have not been possible. Farm income cannot accumulate as rapidly in the years immediately ahead because many of these postponed replacements will have to be made.

One of the major needs for new investment on many farms is for the rebuilding of soil productivity. Demands on the soil during the war years have been heavier than in any other period of the same duration since our country was founded. For example, throughout central Illinois the combined acreage of corn and soybeans was far above the level of normal prewar years and even farther above the recommended maximum for maintenance of soil productivity. The higher yields of hybrid corn and the heavy demand of soybeans, particularly for potassium and phosphorus, resulted in a much more serious annual drain on the soil than the corn, oats, and wheat raised during the first World War. It must also be remembered that these heavier annual demands were made over a longer period of years in the second war than in the first.

Some people may point out that farm prices seem assured for at least three years to come, and that the government will not permit as complete an economic collapse of the nation as occurred in 1930-1934. In buying a farm with the aid of a heavy mortgage, however, the purchaser should

realize that the prices of farm products over the next 15 to 20 years are of more concern than the guaranteed prices of the next three years.

Farm mortgage interest rates of 4 percent instead of 5 or 5½ percent are quoted as a justification for higher land values. While it is true that the amount of interest to be paid with an interest rate of 4 percent on a \$100 mortgage is the same as with a 5 percent rate on an \$80 mortgage, the land buyer sometimes forgets that the principal, which is \$20 per acre more in the first case, must also be paid back. And unless a mortgage is for a long term of years, interest rates might advance before the debt is paid.

It is also important to remember that mere ownership of a farm does not assure an adequate family income. The down payment on the farm often drains away savings ticketed for emergencies and education of the children, and the interest and principal payments on a heavy mortgage may necessitate unjustifiable sacrifices of the necessities of everyday living. It was not uncommon in the early 30's for farm families to jeopardize their security by allowing insurance policies to lapse and to reduce food, clothing, and education to a bare minimum in a final effort to save the farm.

While it is probable that there will be further inflation of prices, farm expenses will probably increase more than farm income. We should not overlook the additional fact that the high crop yields obtained during the war years can hardly be expected to continue indefinitely. As soon as the emergency demand for food is past, most farms should increase the acreage of soil-building legumes in the interest of soil fertility, and as a result there will be a smaller volume of grain to be sold from the farm.

This is definitely a time to weigh all conditions before incurring heavy mortgage debts in purchasing farm land. At present inflated prices, even cash purchases of land should be viewed with utmost caution and undertaken only after the most careful consideration of all the factors mentioned above.

H. C. M. CASE

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹ Survey of Current Business, December, 1942, and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 6-46, 8700
Permit No. 1247

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural employee's compensation ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1930.....	86	88	112	125	114	116	94	110	98	91
1931.....	73	65	77	110	84	77	71	93	74	75
1932.....	65	48	52	96	60	57	60	72	51	58
1933.....	66	51	56	94	62	68	75	68	54	69
1934.....	75	65	76	100	73	73	74	79	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	98	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	101	85	89
1939.....	77	65	81	97	99	107	110	108	100	109
1940.....	78	68	86	98	107	114	116	117	114	125
1941.....	87	82	109	103	142	146	140	144	168	162
1942.....	99	105	140	117	197	200	169	188	245	199
1943.....	103	123	166	127	251	243	191	239	330	239
1944.....	104	124	168	132	265	249	189	266	346	236
1945 Mar....	105	127	172	135	294	249	184	276	342	235
Apr....	106	129	172	135	296	228	169	276	333	231
May....	106	130	172	135	293	242	179	274	319	225
June....	106	130	173	135	287	227	168	274	315	220
July....	106	129	172	135	282	208	154	...	299	210
Aug....	106	127	171	135	274	201	140	...	267	187
Sept....	105	124	169	136	256	192	141	...	224	169
Oct....	106	127	169	137	261	346	253	...	223	162
Nov....	107	131	170	137	282	332	242	...	223	168
Dec....	107	132	171	138	282	256	186	...	226	164
1946 Jan....	107	130	170	138	281	231	167	...	229	160
Feb....	107 ¹¹	131 ¹¹	172	139	305	240	173	...	210	153 ¹¹
Mar....	108 ¹¹	131 ¹¹	175	140	277	...	...	...	232	169 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			May 1945	Current months		
	1935-39	1944	1945		Mar.	Apr.	May
Corn, bu.....	\$.66	\$1.07	\$1.07	\$1.07	\$1.09	\$1.10	\$1.35
Oats, bu.....	.31	.74	.68	.67	.76	.77	.81
Wheat, bu.....	.86	1.54	1.58	1.58	1.66	1.66	1.81
Barley, bu.....	.62	1.16	1.09	1.07	1.13	1.17	1.26
Soybeans, bu.....	.90	1.91	2.09	2.10	2.10	2.10	2.10
Hogs, cwt.....	8.52	13.47	14.25	14.30	14.40	14.40	14.50
Beef cattle, cwt.....	7.88	11.89	13.12	15.10	13.90	14.50	14.90
Lambs, cwt.....	8.36	13.52	13.77	14.00	14.10	15.20	14.80
Milk cows, head.....	58.00	124.50	125.50	123.00	134.00	139.00	139.00
Veal calves, cwt.....	8.66	13.32	14.22	15.30	14.90	15.20	14.80
Sheep, cwt.....	3.58	5.67	6.38	7.10	6.60	6.90	6.70
Butterfat, lb.....	.27	.49	.48	.48	.49	.48	.48
Milk, cwt.....	1.68	3.02	2.95	2.85	3.05	3.00	3.00
Eggs, doz.....	.19	.31	.35	.31	.30	.29	.30
Chickens, lb.....	.15	.24	.25	.25	.23	.24	.25
Wool, lb.....	.25	.42	.44	.42	.41	.43	.43
Apples, bu.....	1.08	3.11	2.99	2.80	4.30	4.30	4.30
Hay, ton.....	9.39	17.65	17.72	19.30	16.00	15.00	14.50
Potatoes, bu.....	.91	1.83	2.06	2.30	1.80	1.70	1.70

¹⁻¹² For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

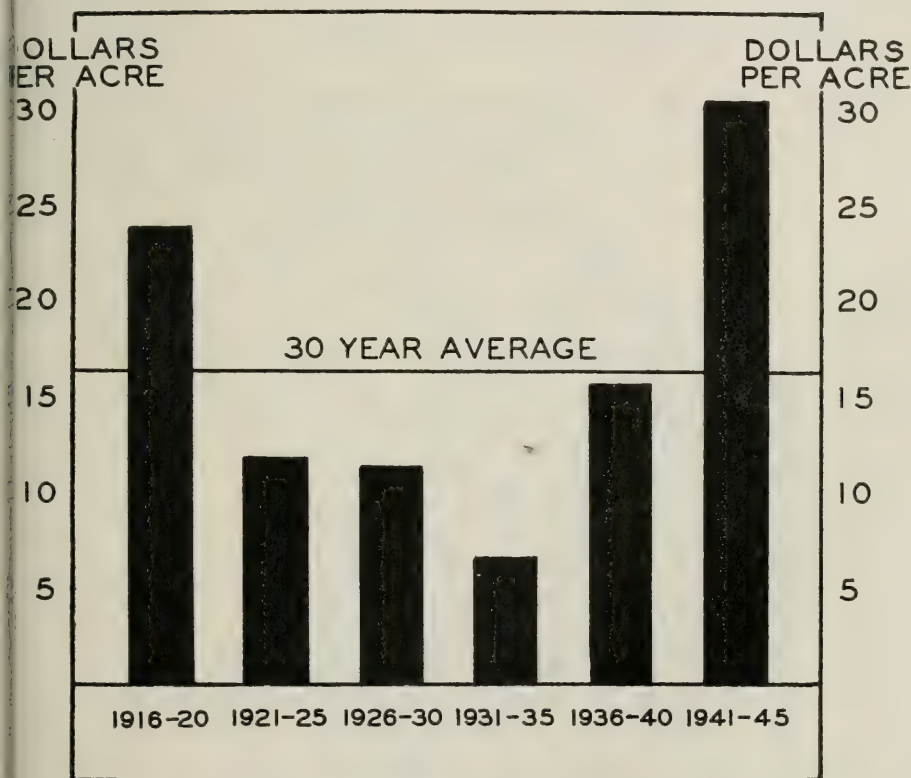
College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

July-August, 1946

Numbers 134 and 135

Summary of Annual Farm Business Reports of 2,917 Illinois Farms For the Year 1945



Net Earnings per Acre, East Central Illinois Farms; Average per Year by Five Year Periods, 1916-1945. For further explanation, see Figure 2.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

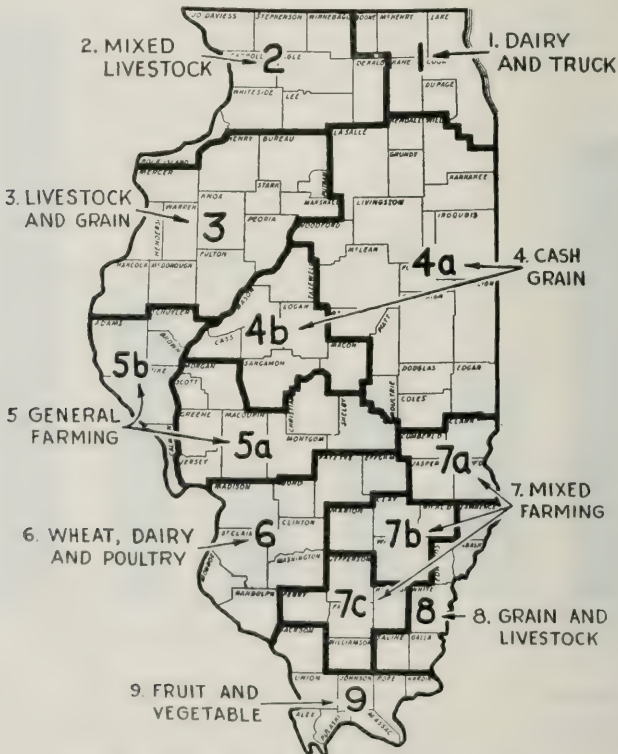
FOREWORD

This is the fifth annual summary of business reports of farms of account cooperators published in Illinois Farm Economics. Similar reports for previous years beginning 1924 were published in the annual reports of the Agricultural Experiment Station.

This issue of Illinois Farm Economics reports an analysis of 2,917 Illinois farm records for 1945. It includes comparisons of earnings for 1945 and previous years and of earnings during World War II and World War I.

The information in this report will be of special value to extension workers, farm managers, farm appraisers, and G.I. instructors; also to representatives of farm credit institutions, commercial organizations, and various other groups that work with farm people.

L. J. NORTON



**THE NINE MAJOR TYPE-OF-FARMING
AREAS IN ILLINOIS**

SUMMARY OF FARM BUSINESS REPORTS OF 2,917 FARMS IN ILLINOIS FOR 1945¹

J. B. CUNNINGHAM, M. L. MOSHER, J. E. WILLS, E. N. SEARLS, and A. G. MUELLER

Net cash income an acre. The average net cash income an acre for accounting farms was slightly lower in 1945 than in 1944. The earning figure was \$15.35 for 1945, compared with \$15.64 for 1944, \$17.16 for 1943, \$1.47 for 1932, and an average of \$5.30 for 1934 to 1939 when earnings were practically the same in each year (Figure 1).

The average net cash income an acre for Illinois accounting farms from 1931 to 1945 was as follows:

1931.....	\$2.69	1936.....	\$7.40	1941.....	\$ 9.91
1932.....	1.47	1937.....	5.33	1942.....	14.99
1933.....	3.00	1938.....	5.25	1943.....	17.16
1934.....	5.40	1939.....	5.40	1944.....	15.64
1935.....	5.14	1940.....	6.82	1945.....	15.35

The net cash income an acre was computed by subtracting the value of unpaid labor from the cash balance for the year and by dividing that difference by the number of acres in the farm. In order to calculate the

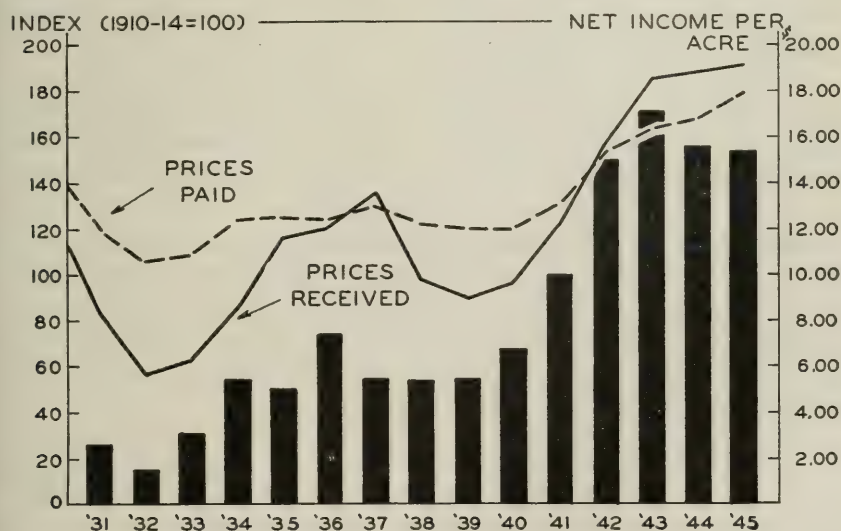


FIG. 1.—AVERAGE NET CASH INCOME AN ACRE (UNPAID LABOR DEDUCTED) ON ILLINOIS ACCOUNTING FARMS, PRICES PAID BY FARMERS IN THE UNITED STATES, AND PRICES RECEIVED BY ILLINOIS FARMERS, 1931-1945

¹Averages in this report include 1,657 Farm Bureau Farm Management Service records and 1,260 State-Wide Extension project records, unless indicated otherwise.

state averages, farming-type area averages were weighted by the acres of land in farms (census) in each area.

These returns do not include the inventory changes or the money value of food, fuel, and other items of living, obtained from the farm. The net cash income an acre is one of the best measures for comparing incomes of groups of farms over a period of years, or for contrasting the level of income for different type-of-farming areas. During any period of years, earnings fluctuate more widely from year to year when inventory changes are included, since there are usually inventory losses when prices are declining and inventory increases when prices are rising.

Effect of large production and high prices on earnings. In 1945 the ratio of prices received by Illinois farmers to prices paid for supplies was 112 percent of the 1910-1914 ratio, and in 1937, it was 102 percent or 10 points lower.

Why, then, should the net cash income an acre be so much larger in 1945 than in 1937? The answer is simply that the war caused a high level of both domestic and foreign demand in 1945 and farmers had a large supply of salable products. Such a combination of circumstances is unusual. Therefore, the farmer should be cautious about making long-time commitments based on 1945 net earnings.

We have had years of low volume of sales, as 1937, when prices were high but there was little to sell, and we have had years like 1939 when a large volume of products was sold at relatively low prices. The effect of both of these combinations was a fairly low level of farm incomes. In 1945 a large volume of products was sold at high prices.

Accounting farms represent better than average conditions. The data in this report represent better than average farm conditions because the accounting farms are larger than average, have crop yields above average, and on the whole are operated with greater than average efficiency. Differences between all farms and the accounting farms in 1945 are shown in the following table:

Item	All farms	Accounting farms
Average size, acres.....	153	255
Corn yield an acre, bushels.....	45.2	52.2
Average gross cash income a farm.....	\$9,664 ^{a, b}	\$13,376

^a Source: Illinois Cooperative Crop Reporting Service.

^b All farms adjusted to the same size as the accounting farms.

Earnings compared for World War I and II. On the front cover and in Figure 2 earnings on an inventory basis are shown for accounting

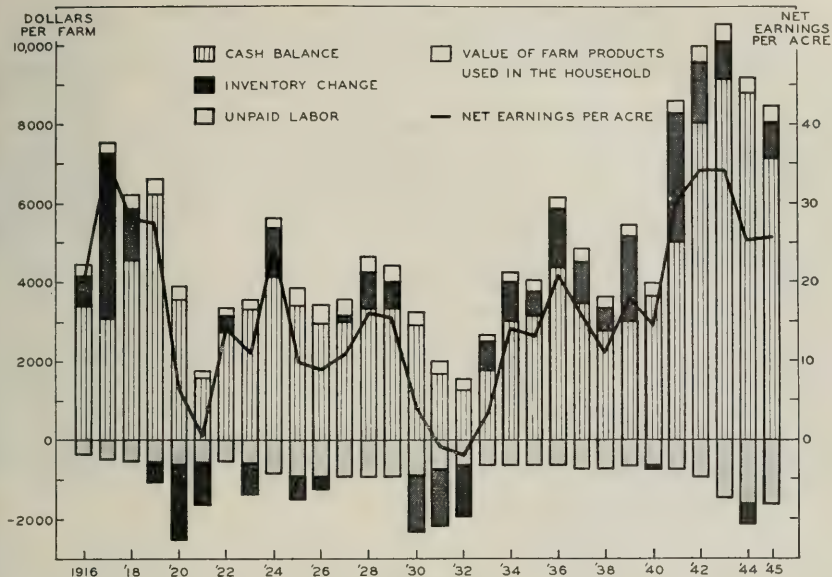


FIG. 2.—CASH BALANCE, INVENTORY CHANGE, UNPAID LABOR, AND VALUE OF FARM PRODUCTS USED IN THE HOUSEHOLD PER FARM; NET EARNINGS PER ACRE; ACCOUNTING FARMS IN EAST CENTRAL ILLINOIS, 1916-1945.

farms in east-central Illinois. This is the only area in the state with adequate records for the 30 years which include the two World War periods. Earnings in this area are indicative of those for the state.

Included in the net earnings are: (1) cash balance, (2) inventory change, (3) value of farm products used in the household, and (4) value of unpaid labor (Figure 2). The items above the line are additions; those below the line are deductions. For example, in 1940 the value of unpaid labor and the decrease in inventory totaling \$718, were subtracted from the sum of the cash balance and the value of farm products used in the household totaling \$3,943. Thus the net farm income was \$3,225 or \$12.13 an acre. The annual net income per acre is shown by the black line.

High farm earnings continued longer and reached greater heights during World War II than during World War I. Furthermore, earnings were more fully realized in cash, as indicated by higher cash balances during the last war than during World War I. More available cash resulted in the retirement of many farm mortgages and in the accumulation of cash reserves, which may foreshadow inflationary dangers — especially in the land market.

Affecting earnings was the 32 percent increase in average size of farm, from 200 acres in 1916-1920 to 265 acres in 1941-1945. The additional

TABLE 1.—SELECTED ITEMS OF INCOME AND EXPENSE
ON ILLINOIS ACCOUNTING FARMS, 1939-1945^a

Item	1939	1940	1941	1942	1943	1944	1945
Acres per farm.....	237	242	239	239	239	251	255
Cash income per farm.....	\$5 920	\$6 334	\$8 002	\$10 865	\$12 113	\$12 654	\$13 376
Cash expenditures per farm.....	4 001	4 094	4 983	6 470	6 905	7 375	8 008
Cash balance.....	\$1 919	\$2 240	\$3 019	\$ 4 395	\$ 5 208	\$ 5 279	\$ 5 368
Inventory increase.....	1 117	541	2 082	1 562	769	—152	190
Farm products used in household....	254	243	284	342	382	395	413
Cash balance plus inventory increase and farm products used in house- hold.....	\$3 290	\$3 024	\$5 385	\$ 6 299	\$ 6 359	\$ 5 522	\$ 5 971
Unpaid labor.....	696	691	769	1 011	1 367	1 623	1 696
Net farm earnings.....	\$2,584	\$2,333	\$4,616	\$ 5,288	\$ 4,992	\$ 3,899	\$ 4,275
Gross receipts per acre ^b	\$20.96	\$20.16	\$31.26	\$ 36.87	\$ 38.36	\$ 38.56	\$ 41.44
Total expense per acre ^c	10.26	10.47	11.63	14.82	17.35	22.67	24.61
Net receipts per acre ^b	\$10.70	\$ 9.69	\$19.63	22.05	\$ 21.01	\$ 15.89	\$ 16.83
Net income per acre (cash basis) ^d	5.40	6.82	9.91	14.99	17.16	15.64	15.35

^a These state averages were obtained by weighting area averages. The last item, net receipts per acre (cash basis), was weighted by the acres of land in farms in each area; all other items were weighted by the number of census farms in each area.

^b Receipts include inventory changes and farm products used in household.

^c Total expense includes unpaid labor charge.

^d Cash balance less unpaid labor.

acres, while not necessarily increasing the net income per acre, added volume to the business and resulted in larger incomes per farm during World War II than during World War I. The change in size was due primarily to the introduction of improved machinery, which allowed the same amount of labor to handle more acres.

During the 30 years, 1916-1945, inventories increased in 19 years and decreased in 11; all but two of the decreases were between 1919 and 1932, following World War I. Increased inventories since 1933 were caused by larger production and higher prices. A reversal of the trends in these two items would immediately be reflected in lower farm earnings.

Unpaid labor of the operator and other members of his family increased in value from \$360 in 1916 to \$951 in 1927; decreased to \$664 in 1940; and then increased to \$1,658 in 1945. During these years the amount of unpaid labor varied little but the value varied with changes in going rates for hired labor.

The value of farm products used in the household, an item of great importance in less commercialized areas, varied from year to year depending principally on price changes, averaging \$322. In 1945, it averaged \$413.

Value of farm products used in the household. In the area farm business reports which have been published separately, and in the printed tables at the back of this report, the farm value of meat, milk, eggs, and other farm products used in the household was included as a source of income. These products have also been included in comparing the 1939-1945 records in Table 1. The average values per farm of farm products

TABLE 2.—CASH FARM BUSINESS EXPENDITURES ON ILLINOIS ACCOUNTING FARMS, 1939-1945

Nature of expenditures ^a	Average per farm							Percent 1945 is of 1944
	1939	1940	1941	1942	1943	1944	1945	
Land improvements, total . . .				\$ 222	\$ 248	\$ 357	\$ 433	121
Capital purchases				(158)	(168)	(240)	(276)	115
Operating expense				(64)	(80)	(117)	(157)	134
Farm buildings, total	\$368	\$ 368	\$ 389	310	306	318	352	111
Capital purchases				(208)	(204)	(205)	(216)	105
Operating expense				(102)	(102)	(113)	(136)	120
Machinery and equipment, total	961	1 019	1 335	1 430	1 366	1 703	1 968	116
Capital purchases				(648)	(469)	(666)	(737)	111
Operating expense				(782)	(897)	(1 037)	(1 231)	119
Feed and grain	634	647	947	1 461	1 866	1 751	1 803	103
Crop and sealing expense	144	152	159	220	268	307	343	112
Hired labor	371	369	432	548	621	648	692	107
Taxes	272	287	294	302	311	327	351	107
Livestock and miscellaneous . . .	1 251	1 252	1 427	1 977	1 919	1 964	2 066	105
Total cash expenses	\$4 001	\$4 094	\$4 983	\$6 470	\$6 905	\$7 375	\$8 008	109

^a Total for each item of expenditure was determined by weighting the averages of each area by the number of census farms in the area.

used in the household has shown a steady increase since 1940, reflecting increases in prices.

From the records which are used to analyze the farm business, rental value of the farm residence, as well as depreciation and maintenance expenses of the residence are omitted. Thus the accounting for farm buildings agrees with income tax rulings.

Cash income per farm. The average cash income and cash expenditures per farm were larger in 1945 than in any year in the history of farm accounting in Illinois.

The average cash balance of \$5,368 for 1945 was over five times as large as the average cash balance of \$968 for 1932, the low-income year of the depression (Table 1). The average cash balance for 1945 was \$89 a farm larger than in 1944, but income tax payments made in 1945 must be deducted from this sum in order to calculate the increase available for farm family living and savings.

Cash farm business expenditures. Illinois accounting farmers spent more money to run their farms in 1945 than in any year of record and probably established an all-time high because farms are larger now and farmers purchase a higher percentage of the materials used to operate their farms. Expenditures averaged 8 per cent larger in 1945 than in 1944 and 102 percent larger in 1945 than in 1939 (Table 2). More money was spent in 1945 than in 1944 for all items. The expenditures include amounts spent for capital and operating items. There were large increases in operating expenses for land improvements, farm buildings, and machinery and equipment in 1945 in comparison with 1944 (Table 2).

The average expenditure per farm of \$8,008 in 1945 may be contrasted with an average expenditure of \$1,494 per farm in 1933, the low point for expenditures in the depression period—an increase of 436 percent. This increase reflects changes in the price level, in quantities purchased, and in the average size of farm.

Inventory increases. Inventories increased each year since the depression year of 1932 except in 1944; these increases have ranged from \$428 per farm in 1938 to \$2,082 per farm in 1941 (Table 1). Since 1932, the total net inventory increase per farm has averaged \$9,817. The increase in 1945 was \$190.

An inventory increase indicates that the combined value of livestock, grain, improvements, and machinery was larger at the end of the year than at the beginning. The ending inventory of each year is for the same farms as the beginning inventory, but the farms included in the averages are not exactly the same in each year because some old cooperators are dropped each year and new ones are added.¹

The inventory increases since 1932 reflect the increase in prices for farm products, heavy investments in improvements and machinery, and an accumulation of grain and livestock. Enough money has been spent for machinery and improvements so that the value per farm on January 1, 1945 was 110 percent larger for machinery and 41 percent larger for improvements than in 1934. For each year since 1932, except 1944, earnings have been higher when inventory changes have been included. On the other hand, inventory losses averaged \$866 a year for the 3 years, 1930-1932, and \$152 for 1944. The inventory gain in 1945 was due to the increases in livestock, machinery, and land improvements. Inventories of feed and grain and buildings decreased. The cash basis more nearly reflects the ability of a farmer to pay his interest; to buy the things that his family needs, and to add to savings than when inventory changes are included. Inventory changes must be included, however, to find the net position of the farm business for the year.

Variations in earnings from farm to farm. Earnings for the farms included in each area vary widely. Much of the farm-to-farm variation is due to the managerial ability of the operators and to the manner in which the farms are organized and operated. The wide variation in rate earned on investment, net earnings per farm, and labor and management earnings indicates the opportunities which some farmers have for improving their incomes. These variations are largely due to factors over which the operator has some control.

Prices of important farm products, war years compared. The average annual farm prices for most of the important farm products in Illi-

¹ More than 1,000 of the cooperators have kept records for ten or more years.

TABLE 3.—PRICES OF PRINCIPAL ILLINOIS FARM PRODUCTS: DECEMBER 15, 1944 AND 1945, AND CALENDAR YEAR AVERAGES 1918 AND 1945

	December 15, 1944	Farm prices 1945	Calendar year 1918	Average prices 1945
Corn, bu.	\$ 1.04	\$ 1.06	\$ 1.31	\$ 1.07
Wheat, bu.	1.57	1.64	2.07	1.58
Oats, bu. ....	.70	.73	.73	.68
Barley, bu.	1.06	1.13	1.27	1.09
Soybeans, bu.	2.05	2.10	2.12 ^a	2.09
Apples, bu.	3.10	4.00	1.63	2.99
Red cloverseed, bu.	18.70	18.40	16.70	18.65
Hay, ton.	18.40	16.60	20.67	17.72
Horses, head.	70.00	56.00	138.00	62.00
Milk cows, head.	119.00	128.00	91.20	125.50
Beef cattle, cwt.	10.90	12.00	11.02	13.12
Hogs, cwt.	13.70	14.30	16.53	14.25
Lambs, cwt.	13.20	13.30	14.43	13.77
Chickens, lb. ....	.24	.23	.21	.25
Milk, whole, cwt.	3.15	3.05	2.88	2.95
Butterfat, lb. ....	.50	.48	.36 ^b	.48
Eggs, doz. ....	.39	.43	.39	.35
Wool, lb. ....	.43	.45	.61	.44

^a 1924 av. ^b 1921 av.

nois were lower during the last year of World War II than during the last year of World War I. Exceptions were apples, red cloverseed, milk cows, beef cattle, chickens, milk, and butterfat. Farm prices in 1945 were supplemented by subsidy payments to farmers for milk, butterfat, and certain classes of beef cattle.

Although most farm prices were under OPA regulations in 1945, the trend in prices was slightly upward during the year as indicated by higher prices for most farm products at the end of the year than at the beginning.

The index of all Illinois farm prices in 1945 was 4 percent higher than in 1944. The percentage changes for the various groups were as follows: chickens and eggs, +9 percent; meat animals, +8 percent; dairy products, -1; feed grain and hay, -2; and fruit, -10 percent.

Shifting ratios between the prices of livestock and livestock products and feeds are responsible for a large part of the variation in earnings among different farming-type areas in Illinois. The relationships between the prices of livestock and livestock products and feeds indicate an unfavorable situation during most of 1945 for livestock producers.

Variation in supplies. Prices of farm products at inventory time influence farm earnings because all feed, grain, livestock, and other farm property are valued at the beginning and at the end of the year. Consequently, the influence is greatest when large stocks are on hand at inventory time and when prices at that time vary widely from those during the year when purchases and sales would be made in the course of operations.

At the end of each year from the drouth of 1936 through 1942, the inventories of the four major grain crops (corn, oats, wheat, and soy-

beans) on Illinois farms were larger at the end of the year than at the beginning. With less favorable crop production conditions and larger demands for grain from increased numbers of livestock and for industrial uses, this upward trend as reflected by the accounting farms was broken in 1943.

Farm supplies of feed and grain were smaller at the end of 1945 than at the beginning; livestock numbers also declined somewhat but the inventory value increased slightly because of higher prices for dairy cattle, beef cattle, and hogs.

Crop yields in Illinois. The year 1945 was the ninth consecutive year of high crop yields in Illinois. The weighted average yield of corn, oats, wheat, and soybeans for 1945 was 107 percent of the 10-year average 1935-1944 (Figure 3).

In 1945 yields of the four principal grain crops as expressed in percentages of 1935-1944 averages, follow: corn, 103; oats, 128; soybeans, 97, and wheat, 103. Corn yields were higher than the previous 10-year average in 66 counties; oats in 74 counties; wheat in 81 counties; and soybeans in 71 counties.

Although more than two-thirds of the counties exceeded their 10-year average, 1935-1944, yield of soybeans, the average for the state was only 97 percent. This situation was due to yields below 100 percent for counties with large acreages, such as Champaign, Moultrie, Macon, DeWitt, Logan, and Sangamon Counties.

Of the 18 counties with crop yields of 100 or less, all but two were in western and southwestern Illinois. In these areas, a wet spring followed by a dry summer greatly reduced the yields of all the principal grain crops.

In general, the highest yield indexes were in northern Illinois where corn and oats are the principal crops. Growing conditions in that part of the state were particularly favorable, but an early frost resulted in much soft corn.

In southeastern Illinois several counties also had high crop yield indexes. The conditions in that area were not as favorable as the map indicates because the yields for 1945 were compared with average yields for a period of years (1935-1944) when there were several near failures in that part of the state; also because farmers in 1945 were unable to plant their normal acreage of crops.

Variations in net cash income an acre. The average net cash income per acre for Illinois accounting farms in 1945 varied from \$2.18 in Area 7 to \$21.47 in Area 3 (Table 4).

Net cash incomes were lower in 1945 than in 1944 in areas 4, 5, 7 and 8 and higher in the other areas. In Area 3 the increase from 1944 to 1945

TABLE 4.—NET INCOME AN ACRE (CASH BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1943, 1944, 1945^a

Farming-type areas	1925-1929	1930-1934	1935-1939	1940-1944	1943	1944	1945
Area 1, Chicago Dairy.....	\$9.59	\$5.25	\$5.61	\$13.72	\$15.40	\$19.80	\$20.44
Area 2, Northwestern Mixed Livestock..	7.94	4.92	7.23	15.96	22.84	19.34	20.74
Area 3, Western Livestock and Grain...	9.05	4.86	6.99	15.33	19.42	17.10	21.47
Area 4, East-Central Cash Grain.....	8.91	4.46	7.15	17.09	22.63	20.29	18.98
Area 5, West-Central General Farming..	6.35	3.23	4.62	11.58	16.15	15.56	13.18
Area 6, St. Louis Dairy and Wheat....	3.26	2.03	3.32	5.79	7.76	6.35	6.77
Area 7, South-Central Mixed Farming...	2.21	.91	1.96	3.47	4.47	4.67	2.18
Area 8, Wabash Valley Grain and Livestock.....	4.57	1.73	3.96	6.58	10.07	8.38	5.39
State Average (weighted by acres in each area).....	\$7.13	\$3.74	\$5.70	\$12.90	\$17.16	\$15.64	\$15.35

^a Includes records of the Farm Bureau Farm Management Service for 1938-1945, except for areas 2, 3 and 4 in 1943 and 1944.

was \$4.37 or 25 percent, as contrasted to a decrease of \$2.99 or 35 percent in Area 8.

The net cash income per acre reflects, in part, the crop yields of the preceding years, because a large percentage of the grain and livestock sales are from crops harvested during prior years. It also reflects current prices for products produced in the area: Thus in Areas 1 and 2 the beneficial effect of high crop yields in 1944 and 1945 was enhanced by the prices of dairy products which averaged fairly high in relation to the prices of most other farm products, when the subsidy is taken into account.

Inventory changes by farming-type areas. The average inventory increased \$190 a farm in 1945. Inventories increased in four areas and decreased in four other areas (Table 5). The \$79 increase for machinery was the result of increased amounts of machinery and equipment available for purchase in 1945 and the overhauling of their old machinery. The \$110 increase in land improvements indicates relatively large pur-

TABLE 5.—INVENTORY CHANGES BY FARMING-TYPE AREAS, 1945^a

Farming-type areas	Number of records	Live-stock	Feed and grain	Ma-chinery	Build-ings	Land improve-ments	Total
Area 1.....	136	\$-282	\$ 333	\$ 81	\$-101	\$ 73	\$ 104
Area 2.....	436	82	-408	117	-18	77	-150
Area 3.....	466	-12	-949	125	-50	83	-803
Area 4.....	149	239	552	63	-63	184	974
Area 5.....	224	74	-55	131	7	133	290
Area 6.....	253	-47	-292	51	39	47	-202
Area 7.....	131	80	-221	19	-20	68	-74
Area 8.....	83	195	512	50	-49	77	785
Weighted Average ^b		\$ 79	\$ -45	\$ 79	\$ -33	\$110	\$ 190

^a Includes Farm Bureau Farm Management Service Records.

^b Weighted by number of census farms.

TABLE 6.—NET INCOME AN ACRE (INVENTORY BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1943, 1944, 1945^a

Farming-type areas	1925-1929	1930-1934	1935-1939	1940-1944	1943	1944	1945
Area 1, Chicago Dairy.....	\$11.04	\$2.64	\$10.03	\$20.54	\$24.46	\$17.91	\$20.96
Area 2, Northwestern Mixed Livestock.....	15.11	2.70	11.45	22.00	27.12	19.27	20.03
Area 3, Western Livestock and Grain.....	10.24	2.84	11.43	21.61	24.45	19.30	18.35
Area 4, East-Central Cash Grain.....	10.30	2.76	11.05	20.84	25.29	18.17	22.51
Area 5, West-Central General Farming.....	7.69	1.99	7.92	15.38	18.96	14.53	14.26
Area 6, St. Louis Dairy and Wheat.....	5.41	.92	5.55	8.37	9.01	8.37	5.87
Area 7, South-Central Mixed Farming.....	3.34	.55	3.76	5.46	6.52	4.03	1.92
Area 8, Wabash Valley Grain and Livestock.....	5.34	1.20	5.22	9.21	12.07	6.73	8.56
State Average (weighted by acres in each area).....	\$8.59	\$2.20	\$9.23	\$17.08 ^b	\$20.44	\$15.10	\$16.12

^a Includes records of the Farm Bureau Farm Management Service for 1938-1945, except for areas 2, 3, and 4 in 1943 and 1944.

chases of limestone and rock phosphate. Average building values in 1945 decreased \$33, as shortages of building materials prevented new construction.

Variations in net income an acre with inventory changes included. When inventory changes were included, the average net income an acre was 7 percent higher in 1945 than in 1944 (Table 6); inventories increased in 1945 and decreased in 1944. In 1945, inventory increases averaged \$190, but in 1944 inventory decreases averaged \$152. The increase in 1945 of 7 percent with inventories included is in contrast with a decrease of 2 percent on the cash basis.

This is the twelfth time since 1932 that the net income an acre on the inventory basis has been higher than on the cash basis. The low years for the inventory basis were in 1930, 1931, 1932 and 1944. In 1945 the range in net income per acre on an inventory basis was from \$1.92 in Area 7 to \$22.51 in Area 4.

Income from agricultural payments. Cash incomes of accounting farmers in 1945 included government payments which were received during the year for participation in the agricultural conservation program.

Factors Affecting Farm Earnings

Farm account studies have repeatedly shown the principal factors affecting relative earnings to be land use, crop yields, amount of livestock, livestock efficiency, labor cost, machinery cost, and prices received for things sold. They have also shown the following: (1) the quality of land affects the cropping system and the crop yields; (2) the kind of livestock influences the kinds and amounts of feed fed as well as the returns for

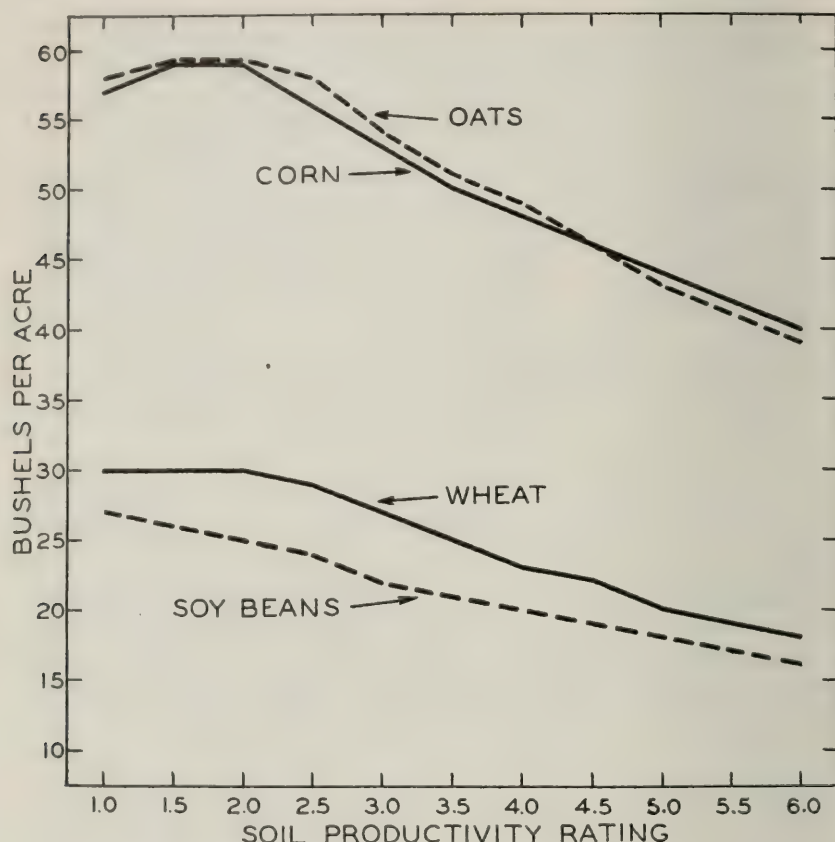


FIG. 4.—AVERAGE YIELDS OF CORN, OATS, WHEAT, AND SOYBEANS ON SOILS OF VARYING PRODUCTIVITY RATINGS; FARMING-TYPE AREAS 1, 2, 3, 4, 1945

feed fed; (3) the size and intensity of the farm business affects practically all the cost items; and (4) price relationships and quantities of products produced affect the relative profitableness of various types of farming for any particular year.

The terms used in the various figures and tables are the same as those used in the Illinois Farm Account Book. For example, "improved land," as used in this report, means tillable land and land occupied by farmstead, roads, and orchards.

The effect of quality of land on grain yields. The data for Figure 4 were taken from Farm Bureau Farm Management Service records principally in areas 1, 2, 3, and 4.

The soils on the improved land of each of 1,657 farms were rated according to the plan of the Soils Division of the Illinois Agricultural Ex-

TABLE 7.—SOURCE OF INCOME RELATED TO FARM EARNINGS AND OTHER FACTORS FOR 377 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2 AND 3, 1945

Item	Source of income				
	Grain 40% +	Dairy sales 40% +	Hogs 40% +	Hogs 40% + and cattle 20% + or vice versa	General farms
Number of farms.....	27	26	131	97	96
Percent of income from productive livestock....	35.4	92.0	89.0	94.1	81.8
Percent of income from crops.....	59.5	3.9	5.8	1.8	12.6
Investments					
Total per farm.....	\$40 487	\$38 259	\$32 935	\$46 670	\$38 251
Total per acre.....	174	183	170	193	179
Land per acre.....	114	87	93	98	93
Land improvements per acre.....	3.58	3.46	3.39	3.66	3.63
Buildings per acre.....	17.22	34.28	19.46	20.64	21.81
Machinery per acre ^a	12.19	14.03	13.47	12.57	12.59
Earnings					
Per farm					
Gross earnings.....	\$ 8 660	\$10 918	\$ 9 239	\$13 856	\$ 9 519
Gross expenses ^b	4 522	6 585	5 858	8 838	5 827
Net earnings.....	\$ 4 138	\$ 4 333	\$ 3 381	\$ 5 018	\$ 3 692
Per acre					
Gross earnings.....	\$ 37.16	\$ 52.28	\$ 47.68	\$ 57.44	\$ 44.45
Gross expenses ^b	19.40	31.53	30.23	36.64	27.21
Net earnings.....	\$ 17.76	\$ 20.75	\$ 17.45	\$ 20.80	\$ 17.24
Rate earned on investment (percent).....	10.2	11.3	10.3	10.8	9.6
Labor and management earnings.....	\$ 3 514	\$ 3 973	\$ 3 146	\$ 4 119	\$ 3 259
Size and Intensity					
Acres per farm.....	233	209	194	241	214
Percent of land area tillable.....	87.0	81.3	79.7	81.4	80.9
Percent tillable land in grain.....	82.6	56.5	71.0	68.4	68.2
Percent tillable land in hay and pasture.....	15.2	37.9	26.6	28.4	26.7
Feed fed per acre to productive livestock.....	\$ 10.16	\$ 29.42	\$ 29.67	\$ 38.26	\$ 25.23
Months of labor per 100 crop acres.....	9.4	16.2	14.1	13.7	13.7
Total months of labor.....	17.1	21.8	18.4	22.7	20.2
Crop Yields per Acre					
Corn, bu.....	45.9	54.1	50.1	50.5	50.9
Livestock Returns					
Per \$100 feed fed.....	\$140	\$168	\$148	\$145	\$150
Hog returns per litter.....	169	183	233	219	208
Dairy returns per cow milked.....	179	259	173	164	183
Expense Factors					
Labor cost per crop acre ^b	\$ 11.20	\$ 21.51	\$ 17.54	\$ 16.80	\$ 16.96
Power and machinery cost per crop acre.....	8.08	12.50	11.39	11.05	10.79
Land improvement cost per acre.....	1.29	.88	1.01	1.11	1.20
Building cost per acre.....	1.15	2.23	1.58	1.68	1.75
Land tax per acre.....	1.16	1.22	1.23	1.29	1.18

^a Machinery includes farm share of automobile.

^b Expenses include operator's and family's labor.

periment Station. This gives the most productive soils a rating of 1 and the least productive soils a rating of 10. The yields in Figure 4 are averages for soils of different ratings in each of eight Farm Bureau Farm Management Service areas.

The variations in yields as they affect the productive value of land are significant. However, it should be kept in mind that these are average yields over a wide area for one year (1945) only. Data of this type are valuable because they enable farmers to compare yields on their own farms with those on farms having a similar quality of land.

Source of income. Grouping by source of income for 1945 gives each farmer an opportunity to compare his farm with the average of

TABLE 8.—RETURNS NECESSARY TO PAY ALL COSTS, AND PROFIT OR LOSS PER \$100 WORTH OF FEED FED TO DIFFERENT CLASSES OF LIVESTOCK

Year	Dairy herds		Poultry		Feeder cattle		Hogs		Yearly price of corn
	Returns	Necessary returns	Returns	Necessary returns	Returns	Necessary returns	Returns	Necessary returns	
1933.....	\$152	\$171	\$217	\$225	\$ 97	\$120	\$128	\$137	\$.32
1934.....	145	155	198	200	125	116	127	125	.58
1935.....	143	148	211	192	152	112	174	126	.74
1936.....	150	147	180	183	96	116	155	124	.73
1937.....	159	151	157	172	106	124	122	121	.91
1938.....	193	188	208	200	142	115	184	135	.45
1939.....	204	193	195	201	131	120	144	136	.43
1940.....	198	197	177	194	136	122	118	134	.54
1941.....	212	187	202	186	124	119	193	136	.63
1942.....	176	182	187	172	136	117	201	134	.77
1943.....	160	167	169	177	105	121	136	132	.97
1944.....	166	181	140	172	107	113	125	132	1.07
1945.....	174	(a)	159	...	119	...	138	...	1.07
12-year average ^b	172	172	187	189	121	118	151	131	.68

^a Data for 1945 is not yet available.

^b Average for 12 years of 1933 to 1944 inclusive.

other farms having similar sources of income. It also gives him an opportunity to study investments, land use, crop yields, labor requirements, horse and machinery requirements, and other factors associated with various types of farming.

Farmers, however, should be careful in interpreting the data in Table 7. For example, the fact that dairy farmers earned the largest rate on the investment for 1945 and that general farms earned the smallest does not mean that such a relationship will prevail over a long period of years. The relative profitableness of enterprises in 1945 was influenced by conditions affecting prices, production and costs.

When comparing crop yields for the various types of farming, one should note the following items indicating that the grain farms were located on the better land: (1) higher value of land per acre; and (2) larger percent of land in grain.

Differences in expenses are highly significant for the 5 groups of farms. Labor input per 100 acres was highest on the dairy farms, where 16.2 months of labor were used, and lowest on the grain farms, where 9.4 months of labor were used. The dairy farmers evidently utilized a large amount of labor to increase the size of their businesses without increasing the size of their farms.

The labor cost per crop acre ranged from \$21.51 on the dairy farms to \$11.20 on the grain farms; the horse and machinery cost per crop acre was highest on the dairy farms, where it averaged \$12.50 and lowest on

the grain farms, where it averaged \$8.08; the building cost per acre averaged \$2.23 on the dairy farms and \$1.15 on the grain farms.

Labor, horse and machinery, and improvement costs were higher for all sources of income groups in 1945 than in 1944; labor cost per crop acre, for example, was 4 percent higher on the grain farms in 1945 than in 1944.

Returns for feed fed and necessary returns compared. The returns per \$100 worth of feed fed in Table 8 are averages of several hundred farm records kept each year by cooperators in the Farm Bureau Farm Management Service. The returns from each class of livestock are obtained by subtracting the purchases of livestock and the inventory value on January 1 from the sales of livestock and livestock products and the inventory value on December 31, plus the value of livestock and livestock products used in the home, or, in the case of milk, fed to livestock. The value of feed is obtained by adding to the farm values of farm grown feeds including pasture the purchase values of protein supplements, mill feeds, and minerals.

The necessary returns to pay for \$100 worth of feed and other costs including labor, use of equipment, interest on investment, and general farm expense as used in this analysis are obtained from the complete cost account studies conducted in Champaign and Piatt counties by the Department of Agricultural Economics.

The profit or loss per \$100 worth of feed fed is obtained by subtracting the necessary returns, as shown by the complete cost studies, from the returns received by the cooperators in the Farm Bureau Farm Management Service. Thus, the twelve-year averages in Table 8 indicate neither a profit nor a loss for dairy herds, a \$2 loss for poultry, a \$3 gain for feeder cattle, and a \$20 gain for hogs. The table also shows for the various classes of livestock wide differences in profits or losses from year to year.

Size of farm. When the farm records in Farming-Type Areas 2 and 3 are sorted according to the total acres in the farm (Table 9), they indicate that the operators on the largest farms took in more money during the year than did those on the smallest ones; and after deductions were made for farm business expenditures and interest on the investment, the 31 largest farms had labor and management earnings which averaged \$5,663 contrasted with \$2,051 for 50 smallest farms. The latter had higher investments an acre for improvements, machinery, and total investment, indicating a higher capital input. The rate earned on investment increased moderately from the farms averaging 102 acres to those averaging 242 acres and showed no significant change as the size of farms were further increased.

TABLE 9.—SIZE OF FARM RELATED TO FARM EARNINGS AND OTHER FACTORS
FOR 377 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2 AND 3, 1945

Item	Total acres in farm				
	Less than 121	121 to 200	201 to 280	281 to 360	361 or more
Number of farms.....	50	159	98	39	31
Acres per farm.....	102	164	242	325	437
Acres in crops.....	72	116	168	220	280
Investments					
Total per farm.....	\$20 209	\$31 840	\$42 888	\$54 591	\$70 856
Total per acre.....	198	194	177	168	162
Land per acre.....	96	101	96	93	88
Land improvements per acre.....	4.82	4.07	3.31	3.33	2.68
Buildings per acre.....	26.68	23.44	20.98	18.21	18.10
Machinery per acre ^a	16.39	14.72	12.44	11.48	10.28
Earnings					
Per farm					
Gross earnings.....	\$ 6 146	\$ 9 231	\$11 472	\$13 674	\$17 846
Gross expenses ^b	4 501	5 984	6 826	8 157	10 121
Net earnings.....	\$ 1 645	\$ 3 247	\$ 4 646	\$ 5 517	\$ 7 725
Per acre					
Gross earnings.....	\$ 60.16	\$ 56.38	\$ 47.46	\$ 42.04	\$ 40.84
Gross expenses ^b	44.05	36.55	28.24	25.08	23.16
Net earnings.....	\$ 16.11	\$ 19.83	\$ 19.22	\$ 16.96	\$ 17.68
Rate earned on investment (percent).....	8.1	10.2	10.8	10.1	10.9
Labor and management earnings.....	\$ 2 051	\$ 3 107	\$ 3 945	\$ 4 205	\$ 5 663
Size and Intensity					
Percent of land area tillable.....	85.8	84.1	80.4	79.9	76.4
Percent tillable land in grain.....	64.6	68.6	71.2	70.1	70.1
Percent tillable land in hay and pasture.....	32.3	28.2	25.2	26.9	25.7
Feed fed per acre to productive livestock.....	\$ 36.78	\$ 33.62	\$ 29.15	\$ 23.41	\$ 25.11
Percent of income from productive livestock.....	90.1	87.9	85.9	81.4	84.2
Percent of income from crops.....	4.0	6.8	9.4	14.0	12.0
Months of labor per 100 crop acres.....	20.0	15.4	12.5	11.5	11.4
Total months of labor.....	14.5	17.8	20.9	25.3	31.8
Crop Yields per Acre					
Corn, bu.....	53.7	51.2	51.0	46.8	48.4
Expense Factors					
Labor cost per crop acre.....	\$ 25.13	\$ 19.09	\$ 15.50	\$ 14.08	\$ 14.08
Power and machinery cost per crop acre.....	13.98	12.07	10.37	9.77	9.35
Land improvements cost per acre.....	1.44	1.24	1.03	1.04	.87
Buildings cost per acre.....	2.12	1.87	1.60	1.36	1.49
Land tax per acre.....	1.32	1.30	1.22	1.14	1.16

^a Machinery includes farm share of automobile.^b Expenses include operator's and family's labor.

In 1945, the smaller farms were operated more intensively than were the larger ones. This is indicated by the higher gross earnings an acre, by the larger labor and capital inputs an acre, and by the larger value of feed fed an acre to productive livestock.

The method used to increase the volume of business depended upon the individual farm. Some farm operators apparently increased the volume of their businesses by improving the quality and increasing the amount of livestock; others, by growing more intensive crops, by increasing crop yields, or by developing special markets; still others, by increasing the acreage operated or by applying combinations of the above methods.

Labor and power and machinery expenses. The effect of the amount of feed fed an acre to productive livestock on labor and power and machinery costs per crop acre is shown in Table 10.

TABLE 10.—LABOR COST AND POWER AND MACHINERY COST PER CROP ACRE FOR
DIFFERENT SIZE FARMS AND DIFFERENT AMOUNTS OF FEED FED
PER ACRE TO PRODUCTIVE LIVESTOCK
(Accounting Farms in Farming-Type Area 4, 1945)

Acres per farm	Feed fed per acre				Feed fed per acre			
	Less than \$11.00	\$11.00 to \$17.99	\$18.00 to \$24.99	\$25.00 and more	Less than \$11.00	\$11.00 to \$17.99	\$18.00 to \$24.99	\$25.00 and more
	(Labor cost per crop acre)				(Power and machinery cost per crop acre)			
Less than 120.....	\$13.20	\$17.10	\$19.30	\$24.50	\$10.20	\$11.60	\$11.80	\$12.00
121 to 200.....	11.70	13.50	15.00	18.20	8.80	9.70	10.60	11.30
201 to 280.....	10.40	11.70	12.90	14.50	7.70	8.70	9.30	9.90
281 to 360.....	9.30	11.00	11.70	12.20	7.30	7.90	8.90	9.40
361 to 440.....	8.20	10.10	10.50	11.80	6.60	7.50	8.30	8.70
441 or more.....	7.50	9.50	10.00	11.50	5.90	7.00	7.90	8.20

As the size of farms increased from the smallest to the largest size group the labor cost per crop acre decreased much more than the power and machinery cost per crop acre. For example, with farms feeding \$20 worth of feed per crop acre, the labor cost per crop acre decreased from \$19.30 to \$10.00 and power and machinery cost decreased from \$11.80 to \$7.90. In the former case the decrease was \$9.30, but in the latter it was only \$3.90. If labor cost had been lower in relation to power and machinery cost, the difference would not have been so great. The comparison shows that the adjustment to size of farm business presents a bigger problem in connection with labor than with power and machinery. In 1945, labor cost per crop acre was higher than power and machinery cost for each farm size group.

Four other significant things are apparent in this table: (1) costs per crop acre increased as the size of the farms decreased; (2) costs increased as the amount of feed fed per acre increased; (3) costs (especially labor costs) decreased much less rapidly when large farms were increased in size than when small ones were increased (this situation is explained in part by the fact that dairy cattle and poultry predominate on the smaller farms and that beef cattle predominate on the larger farms); and (4) labor costs increased rapidly as the feed fed increased from less than \$11.00 to \$11.00 to \$17.99 an acre.

Farmers who know what their costs for labor and for power and machinery expense per crop acre were in 1945 will find that these data contain a basis for comparing their expenses with averages for other farms of the same size and with the same intensity of livestock.¹

¹Data for other areas of Illinois are available in the area reports for 1945.

Analysis of Farm Leases

In 1945, tenants in areas 1 and 6 received more income per \$100 input than their landlords; but in areas 2, 3, 4 and 5 this situation was reversed. By income is meant "Receipts and Net Increases" as used in the farm account book; and by input is meant "Expenses and Net Decreases," plus the value of unpaid labor and interest on investment. This analysis is restricted to those areas with large numbers of records on all rented farms.

Variations in income per \$100 input between landlord and tenant from area to area were due to price relationships, volume of production, kinds of leases, and other factors. Under a different set of conditions than those prevailing in 1945 the results would be different.

The rental value of the residence was not included in the tenant's gross income nor in the landlord's total input because the records did not furnish sufficient information to make this computation. Had this item been included, the comparisons would be more favorable to tenants and less favorable to landlords than is shown in Table 11.

Also excluded from the computations is the value of management of both tenant and landlord, because there is no satisfactory basis for evaluating management. If groups of tenants and landlords contribute management in proportion to the value of their other inputs, the exclusion of this item does not affect final results. It should be recognized, however, that there are wide variations in the value of management contributed by individual tenants and landlords.

In the analysis, real estate values, as shown in the farm account books, were adjusted to bring them in line with the 1945 market price. These adjustments considered a 63 percent increase in market price of land in Illinois from 1935-1939 to 1945; also, changes that had been made by account keepers in their real estate valuations. Another adjustment was in the interest rate on real estate, from five to four percent, to make it more in line with the current mortgage rate. The foregoing analysis is

TABLE 11.—GROSS INCOME, INPUT, AND INCOME PER \$100 INPUT
FOR LANDLORD AND TENANT; ACCOUNTING FARMS, 1945^a

	Rented ^b farms	Gross income		Total input		Income per \$100 input ^c	
		Tenant	Landlord	Tenant	Landlord	Tenant	Landlord
Area 1	70	\$9,207	\$5,131	\$7,445	\$4,482	\$124	\$114
Area 2	66	6,695	4,455	5,609	3,198	119	139
Area 3	96	8,492	4,238	6,853	3,232	124	131
Area 4	99	6,620	4,312	5,113	3,073	130	140
Area 5	46	6,799	3,263	5,558	2,407	122	135
Area 6	61	5,451	1,271	4,817	1,231	113	103

^a Records from state-wide extension project.

^b Part rented farms excluded.

^c Income and expenses on farm dwelling omitted.

based on the general principle that a farm lease is equitable when the landlord and tenant share in the gross income in proportion to the value of their inputs, often called contributions. Or, in other words, when each party to the contract is paid in proportion to the value of the items which each contributes. In applying this principle care must be exercised in using comparable values for capital, interest rates, unpaid labor, management, and other items.

Data for Counties and Groups of Counties

Averages were calculated for each county with sufficient records to give significant averages and for groups of counties with small numbers of records. These averages are arranged in Table 14 according to farming-type areas. Counties or groups of counties in Area 1 come first in the list, and those in Area 9 at the end of it. For summaries by farming-type areas see Tables 12 and 13.

TABLE 12.—INVESTMENTS, CASH RECEIPTS, CASH EXPENSES, AND INVENTORY CHANGES
AVERAGES PER FARM BY FARMING-TYPE AREAS, 1945

Item	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Capital investment, total.....	\$45 638	\$39 661	\$47 594	\$52 223	\$35 060	\$21 286	\$17 227	\$20 700	\$12 907
Land.....	19 783	18 590	25 822	32 855	19 763	10 677	8 765	11 209	6 256
Land improvements.....	914	887	1 015	1 072	883	534	702	692	356
Farm buildings.....	8 881	6 352	4 801	5 139	3 569	2 577	1 862	2 414	1 348
Machinery and equipment ^a	3 125	3 101	3 221	3 221	2 623	2 339	1 557	1 739	1 071
Feed and grain.....	4 886	4 920	5 076	5 458	3 774	2 508	1 826	2 244	1 441
Livestock, total.....	8 049	6 049	6 879	4 478	4 448	2 651	2 515	2 411	2 435
Cash receipts, total.....	\$18 875	\$14 986	\$18 318	\$15 775	\$13 323	\$ 8 311	\$ 6 139	\$ 7 162	\$ 4 621
Feed and grain.....	1 782	2 113	3 425	6 658	3 771	1 973	1 636	2 195	939
AAA payments.....	71	98	123	116	110	119	112	120	92
Labor and miscellaneous.....	507	357	493	511	460	303	195	209	163
Livestock, total.....	16 515	12 418	14 277	8 490	8 982	5 916	4 196	4 638	3 427
Horses.....	21	21	25	29	26	29	32	17	99
Cattle.....	7 436	4 678	5 417	2 893	2 795	1 074	1 251	1 096	897
Hogs.....	2 683	4 322	6 996	3 468	4 238	1 510	1 504	2 382	978
Sheep.....	78	180	439	185	134	82	123	58	130
Poultry and eggs.....	675	741	568	775	558	849	662	681	566
Dairy sales.....	5 622	2 476	832	1 140	1 231	2 372	624	404	757
Cash expenses, total.....	\$13 042	\$ 8 682	\$11 018	\$ 8 829	\$ 8 033	\$ 4 882	\$ 4 171	\$ 4 438	\$ 2 892
Land improvements.....	470	384	365	519	420	309	442	470	211
Farm buildings.....	647	470	421	378	337	277	156	139	113
Livestock purchases.....	4 803	2 580	3 076	1 901	1 522	551	613	579	507
Feed and grain.....	2 415	1 732	2 840	1 647	2 207	1 386	1 041	1 077	633
Machinery and equipment.....	2 351	1 946	2 319	2 390	2 010	1 461	1 203	1 322	903
Hired labor.....	1 202	683	870	870	683	351	260	355	191
Crop expense.....	489	360	404	437	328	221	176	187	130
Taxes.....	352	309	430	477	363	209	190	233	154
Livestock and miscellaneous.....	313	215	232	210	163	117	90	76	50
Cash balance.....	\$ 5 833	\$ 6 304	\$ 7 300	\$ 6 946	\$ 5 290	\$ 3 429	\$ 1 968	\$ 2 724	\$ 1 729
Increase in inventory.....	104	—150	—803	974	290	—202	—74	785	528
Total unpaid labor.....	1 703	1 901	1 778	1 710	1 793	1 900	1 362	1 394	1 331
Net farm income.....	\$ 4 234	\$ 4 253	\$ 4 719	\$ 6 210	\$ 3 847	\$ 1 327	\$ 532	\$ 2 115	\$ 926
Number of farms included.....	136	436	466	1 149	224	253	131	83	33

^a Includes farm share of automobile.

TABLE 13.—FACTORS HELPING TO ANALYZE THE FARM BUSINESS BY FARMING-TYPE AREAS, 1945

Item	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Size of farm, acres.....	202	212	257	276	270	226	278	247	237
Tillable land (percent).....	83	80	80	90	78	82	83	84	70
Inventory basis									
Gross receipts per acre ^a	\$65.10	\$54.26	\$51.21	\$47.13	\$38.16	\$29.78	\$17.77	\$26.64	\$17.92
Total expenses per acre.....	41.96	32.23	31.21	23.06	22.46	22.08	14.48	16.46	12.32
Net receipts per acre.....	\$23.14	\$22.03	\$20.00	\$24.07	\$15.70	\$7.70	\$3.29	\$10.18	\$5.60
Cash basis									
Gross receipts per acre.....	\$93.44	\$70.59	\$71.22	\$57.18	\$49.38	\$36.79	\$22.11	\$29.00	\$19.47
Total cash expense per acre.....	73.00	49.85	49.75	38.20	36.20	30.02	19.93	23.61	17.79
Net cash income per acre.....	\$20.44	\$20.74	\$21.47	\$18.98	\$13.18	\$6.77	\$2.18	\$5.39	\$1.68
Acres in:									
Corn.....	55	63	85	95	56	25	26	48	28
Oats.....	38	39	41	41	20	15	9	5	5
Wheat.....	1	1	2	6	21	43	32	38	16
Soybeans.....	6	6	23	53	50	21	22	13	7
Bushels per acre:									
Corn.....	51	52	49	55	49	35	34	48	41
Oats.....	67	62	50	51	35	25	17	23	13
Wheat.....	27	29	26	24	19	16	16	16	16
Soybeans.....	25	24	23	23	20	14	13	16	17
Value of feed fed to livestock.....	\$8.286	\$7.234	\$8.438	\$5.307	\$5.224	\$3.544	\$2.788	\$3.148	\$2.035
Returns per \$100 feed fed.....	147	145	139	139	156	168	149	153	186
Feed fed per acre to livestock.....	39.96	33.41	32.33	18.85	18.77	14.95	9.61	12.21	7.78
Returns per acre from livestock.....	58.71	48.51	45.02	26.14	29.25	25.13	14.37	18.65	14.46
Power and machinery cost per crop acre.....	\$14.83	\$11.85	\$11.09	\$9.30	\$9.89	\$9.70	\$8.37	\$9.05	\$10.56
Labor cost per crop acre.....	19.67	17.83	15.05	11.62	13.96	16.02	11.77	12.43	17.76
Value of land per acre.....	\$	\$	\$ 100	\$ 119	\$ 73	\$ 47	\$ 32	\$ 45	\$ 26
Value of land improvements per acre.....	5	4	4	4	3	2	3	3	2
Value of buildings per acre.....	44	30	19	19	13	11	7	10	6
Total investment per acre.....	226	187	185	189	130	94	62	84	54
Number of farms included.....	136	436	466	1 149	224	253	131	83	33

^a Farm products used in household included.^b Includes charge for unpaid labor.

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945

Accounting Item	McHenry	Kane	DuPage, Lake, Cook, Boone	DeKalb	
Capital investment, total.....	1	\$36 006	\$57 720	\$43 106	\$52 810
Land.....	2	15 117	24 225	19 702	27 014
Land improvements.....	3	744	1 347	690	1 022
Farm buildings.....	4	7 436	11 230	8 065	7 628
Horses.....	5	192	246	203	173
Cattle.....	6	4 733	9 616	5 279	5 112
Hogs.....	7	579	1 661	1 045	1 877
Sheep.....	8	17	17	94	161
Poultry.....	9	189	200	197	160
Feed and grain.....	10	4 243	5 586	4 805	6 327
Machinery and equipment.....	11	2 756	3 592	3 026	3 336
Income, net increases, total.....	12	\$12 184	\$15 990	\$11 578	\$13 785
Cattle.....	13	1 172	5 955	2 010	3 985
Dairy sales.....	14	7 891	4 136	5 115	1 759
Hogs.....	15	1 348	3 400	2 257	5 003
Sheep.....	16	14	14	68	154
Poultry and eggs.....	17	672	654	564	601
Farm products used in household.....	18	412	463	445	418
Feed and grain.....	19	534	1 198	970	1 729
AAA payment.....	20	61	75	75	87
Labor and miscellaneous.....	21	80	95	74	49
Expenses, net decreases, total.....	22	\$ 6 002	\$ 8 891	\$ 5 637	\$ 5 533
Land improvements.....	23	364	556	281	348
Farm buildings.....	24	588	915	607	516
Feed and grain.....	25	1 113	2 922	1 160	1 159
Machinery and equipment.....	26	1 725	2 224	1 763	1 838
Hired labor.....	27	1 251	1 334	1 058	1 013
Taxes.....	28	318	364	369	358
Livestock and miscellaneous.....	29	643	576	399	301
Receipts less expenses.....	30	\$ 6 182	\$ 7 099	\$ 5 941	\$ 8 252
Unpaid labor.....	31	1 661	1 695	1 741	1 926
Net farm earnings.....	32	\$ 4 521	\$ 5 404	\$ 4 200	\$ 6 326
Rate earned on investment, percent.....	33	12.6	9.4	9.7	12.0
Labor and management earnings.....	34	\$ 4 054	\$ 3 863	\$ 3 379	\$ 5 115
Excess of sales over expenses.....	35	5 643	6 392	5 523	8 064
Increase in inventory.....	36	127	244	-27	-230
Number of farms included.....	37	40	43	53	90
Size of farm, acres.....	38	187	209	207	216
Gross earnings per acre.....	39	\$ 65.16	\$ 76.40	\$ 55.82	\$ 63.85
Total expenses per acre.....	40	40.98	50.58	35.57	34.55
Net earnings per acre.....	41	\$ 24.18	\$ 25.82	\$ 20.25	\$ 29.30
Value of land per acre.....	42	\$ 81	\$116	\$ 95	\$125
Value of improved land per acre.....	43	87	118	100	128
Value of buildings per acre.....	44	39.76	53.65	38.89	35.33
Total investment per acre.....	45	193	276	208	245
Percent of land area tillable.....	46	79.6	87.9	81.4	92.2
Percent of tillable land in:					
Corn.....	47	36.0	46.7	40.3	46.6
Oats.....	48	22.2	22.7	23.1	23.9
Wheat.....	49	1	5	5	2
Soybeans for grain.....	50	1.0	4.2	5.3	5.2
Other cultivated crops.....	51	1.8	3	1.0	1.0
Hay and pasture.....	52	38.9	25.6	29.8	23.1
Bushels per acre: Corn.....	53	51.7	55.8	45.6	54.0
Oats.....	54	64.6	73.1	64.4	70.3
Wheat.....	55	15.0	24.0	30.0	34.0
Soybeans.....	56	20.7	25.8	23.5	24.9
Feed fed per acre.....	57	\$ 35.15	\$ 50.48	\$ 34.62	\$ 37.24
Returns for \$100 feed fed.....	58	170	137	143	147
Number of litters farrowed.....	59	9	25	14	25
Returns per litter.....	60	\$215	\$234	\$201	\$257
Dairy returns per cow.....	61	295	293	279	258
Egg returns per hen.....	62	4.77	4.44	4.20	4.41
Power and machinery cost per crop acre.....	63	\$ 16.35	\$ 15.46	\$ 13.35	\$ 11.31
Labor cost per crop acre.....	64	23.72	18.39	18.33	16.47
Land improvements cost per acre.....	65	1.95	2.66	1.35	1.61
Farm buildings cost per acre.....	66	3.14	4.37	2.93	2.39
Taxes per acre.....	67	1.70	1.74	1.78	1.66

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—Continued

	Stephen- son	Lee	Ogle	Rock Island	Winne- bago	White- side	Jo Davies	Carroll
1	\$31 817	\$50 780	\$37 416	\$32 257	\$38 458	\$38 588	\$29 372	\$32 157
2	12 932	27 728	16 891	15 825	14 959	17 283	12 234	14 449
3	654	1 379	755	662	1 065	897	815	650
4	6 064	6 327	5 932	4 408	8 715	6 622	4 762	5 178
5	207	123	198	163	193	172	273	215
6	3 531	3 517	4 154	2 431	4 165	4 080	4 032	3 442
7	1 396	1 763	1 730	1 658	1 382	1 728	1 407	1 466
8	58	39	48	65	139	104	159	390
9	216	138	175	171	187	183	233	249
10	4 048	6 344	4 823	4 342	4 739	5 146	3 162	3 831
11	2 711	3 422	2 710	2 532	2 914	2 373	2 295	2 287
12	\$10 891	\$12 949	\$10 867	\$ 9 611	\$11 533	\$11 561	\$10 291	\$ 8 616
13	1 808	2 377	3 164	1 584	2 160	2 516	2 035	1 923
14	4 010	1 822	1 855	1 441	4 455	2 045	2 840	1 574
15	3 535	4 797	3 951	4 273	3 173	4 662	3 730	3 422
16	50	111	35	96	21	71	161	75
17	751	619	596	740	659	585	766	926
18	403	389	400	527	407	417	454	400
19	185	2 655	733	780	462	1 156	167	159
20	103	125	100	87	116	78	96	107
21	46	54	33	83	80	31	42	30
22	\$ 4 654	\$ 4 820	\$ 4 923	\$ 4 317	\$ 4 951	\$ 5 121	\$ 5 224	\$ 3 941
23	267	440	278	199	301	393	262	177
24	469	558	484	366	585	497	423	323
25	1 418	871	1 558	1 248	1 055	1 575	2 135	1 347
26	1 373	1 684	1 464	1 442	1 576	1 536	1 274	1 145
27	564	668	565	555	785	597	586	453
28	265	347	320	341	305	291	237	264
29	298	252	254	166	344	232	307	232
30	\$ 6 237	\$ 8 129	\$ 5 944	\$ 5 294	\$ 6 582	\$ 6 440	\$ 5 067	\$ 4 675
31	2 024	1 889	1 821	1 785	1 932	1 830	1 961	1 770
32	\$ 4 213	\$ 6 240	\$ 4 123	\$ 3 509	\$ 4 650	\$ 4 610	\$ 3 106	\$ 2 905
33	13.2	12.3	11.0	10.9	12.1	12.0	10.6	9.0
34	\$ 4 033	\$ 5 090	\$ 3 653	\$ 3 280	\$ 4 100	\$ 4 047	\$ 3 008	\$ 2 719
35	5 661	7 332	5 604	4 973	6 104	6 342	5 469	5 091
36	173	408	-60	-206	71	-319	-856	-816
37	72	43	51	41	38	38	43	20
38	177	242	203	194	238	212	249	193
39	\$ 61.44	\$ 53.58	\$ 53.56	\$ 49.59	\$ 48.56	\$ 54.48	\$ 41.26	\$ 44.60
40	37.67	27.76	33.24	31.48	28.98	32.76	28.81	29.56
41	\$ 23.77	\$ 25.82	\$ 20.32	\$ 18.11	\$ 19.58	\$ 21.72	\$ 12.45	\$ 15.04
42	\$ 73	\$115	\$ 83	\$ 82	\$ 63	\$ 81	\$ 49	\$ 75
43	78	119	91	70	89	89	62	86
44	34.20	26.18	29.24	22.75	36.69	31.21	19.09	26.80
45	179	210	184	166	162	182	118	166
46	79.9	88.0	80.2	77.3	75.7	82.1	54.0	74.2
47	34.2	41.3	39.2	44.3	37.5	44.9	31.0	37.6
48	23.9	22.6	27.7	19.5	24.1	18.7	21.6	23.5
49	.1	1.4	.2	.9	.4	2.4	.4	.3
50	1.4	8.0	1.9	2.7	2.4	5.7	.2	1.0
51	.5	3.3	.9	1.0	1.0	.5	3.3	2.0
52	39.9	23.4	30.1	31.6	34.6	27.8	43.5	35.6
53	51.8	54.9	50.3	56.5	48.4	53.0	42.9	50.9
54	62.9	66.0	64.7	48.3	56.3	58.0	51.7	57.8
55	25.0	33.3	12.5	19.2	23.3	29.8	16.0	20.0
56	21.0	26.2	20.3	19.0	18.4	21.3	16.7	29.3
57	\$ 39.02	\$ 29.37	\$ 35.79	\$ 30.73	\$ 30.24	\$ 35.43	\$ 25.19	\$ 31.72
58	151	141	136	143	149	136	158	134
59	18	22	20	21	17	22	18	17
60	\$214	\$260	\$232	\$223	\$237	\$234	\$234	\$241
61	243	233	235	186	253	219	190	197
62	4.38	4.49	4.45	5.15	4.77	5.29	4.20	4.44
63	\$ 13.62	\$ 9.78	\$ 11.87	\$ 12.68	\$ 11.58	\$ 11.27	\$ 14.42	\$ 11.67
64	22.29	13.65	17.01	18.49	17.85	15.95	24.03	18.88
65	1.51	1.82	1.37	1.03	1.27	1.85	1.05	.92
66	2.65	2.31	2.39	1.89	2.46	2.34	1.70	1.67
67	1.49	1.44	1.58	1.76	1.28	1.37	.95	1.37

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—*Continued*

Accounting Item		Henry	McDon- ough	Knox	Bureau
Capital investment, total.....	1	\$47 773	\$45 785	\$53 179	\$52 914
Land.....	2	24 443	26 051	29 368	27 244
Land improvements.....	3	1 003	1 033	1 264	1 192
Farm buildings.....	4	5 373	4 214	5 441	5 583
Horses.....	5	130	127	147	130
Cattle.....	6	4 300	2 794	3 926	5 269
Hogs.....	7	2 953	2 490	2 323	2 670
Sheep.....	8	133	96	181	616
Poultry.....	9	167	179	120	180
Feed and grain.....	10	6 184	5 838	6 938	6 314
Machinery and equipment.....	11	3 087	2 963	3 471	3 716
Income, net increases, total.....	12	\$14 087	\$12 274	\$13 615	\$14 106
Cattle.....	13	3 411	2 280	2 717	3 704
Dairy sales.....	14	943	568	1 141	1 038
Hogs.....	15	7 616	7 196	6 351	6 593
Sheep.....	16	180	79	92	197
Poultry and eggs.....	17	564	726	421	634
Farm products used in household.....	18	438	405	470	434
Feed and grain.....	19	782	900	2 238	1 327
AAA payment.....	20	117	103	135	125
Labor and miscellaneous.....	21	36	17	50	54
Expenses, net decreases, total.....	22	\$ 7 260	\$ 6 201	\$ 5 982	\$ 6 864
Land improvements.....	23	266	227	332	326
Farm buildings.....	24	488	388	479	522
Feed and grain.....	25	2 905	2 207	1 339	2 886
Machinery and equipment.....	26	1 892	1 768	1 968	1 717
Hired labor.....	27	972	914	1 115	803
Taxes.....	28	470	414	464	334
Livestock and miscellaneous.....	29	267	283	285	276
Receipts less expenses.....	30	\$ 6 827	\$ 6 073	\$ 7 633	\$ 7 242
Unpaid labor.....	31	1 760	1 764	1 830	1 859
Net farm earnings.....	32	\$ 5 067	\$ 4 309	\$ 5 803	\$ 5 383
Rate earned on investment, percent.....	33	10.6	9.4	10.9	10.2
Labor and management earnings.....	34	\$ 4 112	\$ 3 352	\$ 4 547	\$ 4 018
Excess of sales over expenses.....	35	7 930	7 497	7 603	8 414
Increase in inventory.....	36	-1 541	-1 829	-440	-1 608
Number of farms included.....	37	68	52	50	39
Size of farm, acres.....	38	244	231	297	229
Gross earnings per acre.....	39	\$ 57.61	\$ 53.18	\$ 45.90	\$ 61.60
Total expenses per acre.....	40	36.89	34.51	26.34	38.09
Net earnings per acre.....	41	\$ 20.72	\$ 18.67	\$ 19.56	\$ 23.51
Value of land per acre.....	42	\$100	\$113	\$ 99	\$119
Value of improved land per acre.....	43	108	120	113	126
Value of buildings per acre.....	44	21.98	18.26	18.34	24.38
Total investment per acre.....	45	195	198	179	231
Percent of land area tillable.....	46	82.3	86.6	79.6	87.1
Percent of tillable land in:					
Corn.....	47	45.0	42.3	39.2	44.3
Oats.....	48	20.0	17.7	18.7	23.2
Wheat.....	49	1.0	1.2	2.3	1.0
Soybeans for grain.....	50	6.5	15.8	14.1	3.4
Other cultivated crops.....	51	1.2	1.0	.6	.8
Hay and pasture.....	52	26.3	22.0	25.1	27.3
Bushels per acre: Corn.....	53	49.3	44.1	47.9	54.6
Oats.....	54	54.0	40.8	53.8	57.4
Wheat.....	55	27.5	22.6	30.9	29.0
Soybeans.....	56	25.2	19.6	23.7	28.7
Feed fed per acre.....	57	\$ 38.99	\$ 34.26	\$ 26.69	\$ 42.00
Returns for \$100 feed fed.....	58	137	141	140	130
Number of litters farrowed.....	59	39	34	32	32
Returns per litter.....	60	\$205	\$225	\$211	\$230
Daily returns per cow.....	61	184	147	191	190
Egg returns per hen.....	62	4.34	4.86	4.10	4.06
Power and machinery cost per crop acre.....	63	\$ 12.03	\$ 10.87	\$ 10.33	\$ 11.08
Labor cost per crop acre.....	64	16.03	15.23	14.37	15.72
Land improvements cost per acre.....	65	1.09	.98	1.12	1.42
Farm buildings cost per acre.....	66	2.00	1.68	1.61	2.28
Taxes per acre.....	67	1.92	1.79	1.56	1.46

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—Continued

	Marshall- Putnam	Peoria	Fulton	Hender- son, Hancock	Mercer	Warren	Stark	McLean
1	\$61 434	\$44 191	\$36 710	\$39 794	\$44 552	\$47 351	\$50 332	\$62 194
2	35 212	24 867	20 176	20 966	21 853	25 776	28 619	38 201
3	1 140	958	729	914	1 012	888	936	1 214
4	5 788	5 126	3 856	3 607	4 596	4 278	4 719	6 362
5	148	149	147	211	198	252	93	149
6	4 310	2 276	3 112	3 859	5 178	4 500	2 131	3 385
7	3 083	2 207	1 895	2 110	2 779	2 635	2 455	1 836
8	511	378	89	91	82	82	1 227	243
9	140	151	151	104	140	128	161	191
10	7 605	5 318	4 069	5 124	5 554	6 145	6 459	7 095
11	3 497	2 761	2 486	2 808	3 160	2 667	3 532	3 518
12	\$17 423	\$12 372	\$10 905	\$11 305	\$12 493	\$13 878	\$12 136	\$15 667
13	3 650	1 607	2 102	2 871	3 659	4 496	1 334	2 029
14	938	696	1 345	562	520	466	789	1 171
15	9 721	6 333	5 648	5 661	7 045	6 796	5 587	5 390
16	448	339	96	92	85	76	503	121
17	392	629	574	355	431	371	475	668
18	420	439	404	376	402	443	420	398
19	1 591	2 117	314	1 250	188	1 035	2 809	5 696
20	177	120	128	108	119	111	108	120
21	86	92	294	30	44	84	111	74
22	\$ 6 630	\$ 5 090	\$ 5 252	\$ 6 022	\$ 7 016	\$ 6 622	\$ 5 341	\$ 6 098
23	341	308	189	298	234	229	290	307
24	591	451	338	344	469	401	490	542
25	1 877	1 070	1 733	2 126	2 796	2 586	1 032	910
26	1 978	1 722	1 553	1 738	1 785	1 768	1 952	2 259
27	1 043	914	756	872	897	971	917	1 245
28	492	370	425	379	523	406	464	517
29	308	255	258	265	312	261	196	318
30	\$10 743	\$ 7 282	\$ 5 653	\$ 5 283	\$ 5 477	\$ 7 256	\$ 6 795	\$ 9 569
31	2 029	1 500	1 897	1 705	1 841	1 665	1 717	1 666
32	\$ 8 764	\$ 5 782	\$ 3 756	\$ 3 578	\$ 3 636	\$ 5 591	\$ 5 078	\$ 7 903
33	14.3	13.1	10.2	9.0	8.2	11.8	10.1	12.7
34	\$ 6 994	\$ 4 784	\$ 3 328	\$ 2 932	\$ 2 756	\$ 4 672	\$ 3 902	\$ 6 115
35	9 897	5 600	6 504	5 651	6 271	8 254	6 251	8 036
36	476	1 243	-1 255	-744	-1 196	-1 441	124	1 135
37	40	39	37	54	26	30	31	92
38	320	239	247	250	273	255	254	297
39	\$ 54.38	\$ 51.72	\$ 44.08	\$ 45.13	\$ 45.73	\$ 54.36	\$ 47.84	\$ 52.82
40	27.03	27.55	28.90	30.85	32.42	32.46	27.82	26.18
41	\$ 27.35	\$ 24.17	\$ 15.18	\$ 13.31	\$ 13.31	\$ 21.90	\$ 20.02	\$ 26.64
42	\$110	\$104	\$ 82	\$ 84	\$ 80	\$101	\$113	\$129
43	127	117	98	95	95	112	118	132
44	18.06	21.43	15.59	14.40	16.82	16.76	18.60	21.45
45	192	185	148	159	163	185	198	210
46	80.0	81.9	71.9	77.6	69.4	78.6	87.0	92.0
47	41.2	40.8	33.9	37.4	48.8	44.7	46.0	44.3
48	22.5	19.8	18.4	18.6	19.7	21.3	20.6	20.9
49	1.4	1.3	1.8	1.6	.2	.7	...	.1
50	10.6	11.8	15.4	18.5	2.2	5.2	10.8	14.5
51	.5	.7	5.0	1.6	.6	.8	.5	.1
52	23.8	25.6	25.5	22.3	28.5	27.3	22.1	20.1
53	54.2	51.7	50.4	46.5	46.4	50.3	47.3	58.1
54	58.9	52.8	45.8	36.5	43.1	46.0	53.0	52.7
55	30.0	26.0	16.4	21.0	12.5	21.4	...	25.0
56	27.2	23.1	18.8	22.0	20.7	20.0	24.2	24.2
57	\$ 34.46	\$ 28.87	\$ 29.33	\$ 28.07	\$ 33.40	\$ 31.42	\$ 26.39	\$ 23.70
58	140	144	139	140	132	157	135	138
59	52	30	27	25	35	33	35	30
60	\$222	\$217	\$233	\$233	\$210	\$223	\$215	\$221
61	192	179	222	155	185	185	177	201
62	3.82	4.46	4.17	3.52	3.77	3.61	3.55	4.13
63	\$ 9.65	\$ 10.79	\$ 11.70	\$ 11.81	\$ 12.22	\$ 11.79	\$ 10.39	\$ 9.76
64	13.37	13.45	17.89	15.41	16.79	15.32	13.21	11.79
65	1.06	1.29	.76	1.19	.86	.90	1.14	1.04
66	1.84	1.89	1.37	1.37	1.72	1.57	1.93	1.83
67	1.54	1.55	1.72	1.51	1.91	1.59	1.83	1.74

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—Continued

Accounting Item		Tazewell	Ford	Livingston	Woodford
Capital investment, total.....	1	\$48 816	\$55 159	\$50 270	\$50 953
Land.....	2	29 253	34 350	31 623	31 204
Land improvements.....	3	1 130	1 204	1 126	989
Farm building.....	4	5 115	5 032	4 790	4 542
Horses.....	5	148	205	177	124
Cattle.....	6	2 580	3 076	2 169	2 798
Hogs.....	7	1 614	1 150	784	1 621
Sheep.....	8	301	392	37	248
Poultry.....	9	178	176	409	292
Feed and grain.....	10	5 493	6 249	6 016	6 219
Machinery and equipment.....	11	3 004	3 325	3 139	2 916
Income, net increases, total.....	12	\$13 778	\$12 307	\$10 819	\$12 771
Cattle.....	13	1 558	1 975	1 101	1 900
Dairy sales.....	14	1 566	952	906	916
Hogs.....	15	4 736	3 055	1 820	4 273
Sheep.....	16	212	173	49	264
Poultry and eggs.....	17	584	607	1 675	995
Farm products used in household.....	18	432	400	400	465
Feed and grain.....	19	4 521	4 886	4 669	3 797
AAA payment.....	20	108	156	93	102
Labor and miscellaneous.....	21	61	103	106	59
Expenses, net decreases, total.....	22	\$ 4 847	\$ 4 317	\$ 3 962	\$ 4 755
Land improvements.....	23	258	306	274	288
Farm buildings.....	24	466	365	395	364
Feed and grain.....	25	717	229	244	715
Machinery and equipment.....	26	1 788	1 823	1 790	1 772
Hired labor.....	27	823	874	637	847
Taxes.....	28	540	488	380	498
Livestock and miscellaneous.....	29	255	232	242	271
Receipts less expenses.....	30	\$ 8 931	\$ 7 990	\$ 6 857	\$ 8 016
Unpaid labor.....	31	1 675	1 683	1 561	1 716
Net farm earnings.....	32	\$ 7 256	\$ 6 307	\$ 5 296	\$ 6 300
Rate earned on investment, percent.....	33	14.9	11.4	10.5	12.4
Labor and management earnings.....	34	\$ 6 206	\$ 4 867	\$ 4 111	\$ 5 099
Excess of sales over expenses.....	35	7 424	6 687	6 037	6 678
Increase in inventory.....	36	1 075	903	420	873
Number of farms included.....	37	71	64	64	71
Size of farm, acres.....	38	242	298	243	240
Gross earnings per acre.....	39	\$ 56.91	\$ 41.23	\$ 44.54	\$ 53.16
Total expenses per acre.....	40	26.94	20.10	22.74	26.94
Net earnings per acre.....	41	\$ 29.97	\$ 21.13	\$ 21.80	\$ 26.22
Value of land per acre.....	42	\$121	\$115	\$130	\$130
Value of improved land per acre.....	43	128	117	132	137
Value of buildings per acre.....	44	21.13	16.86	19.72	18.91
Total investment per acre.....	45	202	185	207	212
Percent of land area tillable.....	46	86.3	93.7	92.7	89.0
Percent of tillable land in:					
Corn.....	47	40.4	41.1	44.7	45.5
Oats.....	48	16.4	22.9	22.6	21.6
Wheat.....	49	4.1	.4	.8	.4
Soybeans for grain.....	50	17.3	13.2	12.5	9.3
Other cultivated crops.....	51	.5	2.4	.5	.5
Hay and pasture.....	52	21.3	20.0	18.9	22.7
Bushels per acre:					
Corn.....	53	61.8	47.3	51.0	55.0
Oats.....	54	56.3	43.8	44.5	54.1
Wheat.....	55	24.5	29.2	33.3	22.5
Soybeans.....	56	25.5	20.0	21.5	25.4
Feed fed per acre.....	57	\$ 25.32	\$ 17.61	\$ 17.23	\$ 33.90
Returns for \$100 feed fed.....	58	147	135	140	137
Number of litters farrowed.....	59	23	17	13	22
Returns per litter.....	60	\$239	\$207	\$222	\$229
Dairy returns per cow.....	61	261	206	195	200
Egg returns per hen.....	62	4.21	3.39	5.94	4.48
Power and machinery cost per crop acre.....	63	\$ 10.37	\$ 8.23	\$ 9.63	\$ 10.07
Labor cost per crop acre.....	64	13.31	10.42	10.92	13.50
Land improvements cost per acre.....	65	1.07	1.03	1.13	1.20
Farm buildings cost per acre.....	66	1.92	1.22	1.63	1.52
Taxes per acre.....	67	2.23	1.63	1.56	2.07

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—*Continued*

	LaSalle	Cham- paign	Iroquois	Vermilion	Macon	DeWitt	Douglas, Piatt	Sangamon
1	\$61 276	\$53 324	\$45 423	\$54 775	\$53 038	\$50 943	\$59 581	\$56 228
2	35 384	35 501	27 130	35 611	36 439	33 553	40 632	37 832
3	1 254	799	1 197	1 340	1 029	799	1 390	1 224
4	7 257	5 218	5 400	4 978	4 193	4 542	4 748	5 235
5	111	74	161	96	138	63	116	152
6	3 624	2 176	2 526	2 466	2 403	3 110	2 403	2 922
7	1 710	757	1 103	1 089	895	1 109	1 104	2 007
8	155	108	81	86	23	114	30	59
9	192	142	167	145	161	129	155	126
10	7 950	5 494	4 535	5 559	4 226	4 160	5 250	3 362
11	3 639	3 055	3 123	3 405	3 531	3 364	3 753	3 309
12	\$13 866	\$13 538	\$10 932	\$14 387	\$12 541	\$13 374	\$15 288	\$14 215
13	2 416	1 251	1 102	1 553	1 436	1 849	1 171	2 066
14	1 404	1 950	1 280	1 001	1 647	920	544	1 014
15	4 506	1 984	2 724	3 252	1 956	2 279	2 918	4 567
16	109	150	90	141	23	57	50	64
17	539	587	664	620	623	495	654	467
18	458	380	429	428	457	499	466	478
19	4 201	8 064	4 431	7 101	7 237	7 113	9 213	5 347
20	114	117	116	160	90	94	150	128
21	119	55	96	131	72	68	122	84
22	\$ 5 576	\$ 4 199	\$ 4 189	\$ 5 765	\$ 4 155	\$ 3 708	\$ 4 883	\$ 5 326
23	471	288	362	659	243	267	314	331
24	611	459	431	522	315	316	396	488
25	679	92	196	187	117	.....	154	360
26	2 021	1 917	1 752	2 164	1 968	1 832	2 150	2 210
27	1 027	702	735	1 418	740	578	1 068	1 098
28	428	533	459	565	497	490	560	507
29	339	208	254	250	275	225	241	332
30	\$ 8 290	\$ 9 339	\$ 6 743	\$ 8 622	\$ 8 386	\$ 9 666	\$10 405	\$ 8 889
31	1 757	1 552	1 639	1 550	1 685	1 744	1 665	1 777
32	\$ 6 533	\$ 7 787	\$ 5 104	\$ 7 072	\$ 6 701	\$ 7 922	\$ 8 740	\$ 7 112
33	10.7	14.6	11.2	12.9	12.6	15.6	14.7	12.6
34	\$ 4 811	\$ 6 436	\$ 4 149	\$ 5 716	\$ 5 438	\$ 6 737	\$ 7 181	\$ 5 656
35	\$ 8 532	7 444	4 731	6 815	6 359	7 528	8 259	5 536
36	—700	1 514	1 583	1 379	1 570	1 639	1 680	2 875
37	54	72	63	49	47	30	47	52
38	278	276	245	308	272	275	301	314
39	\$ 49.90	\$ 48.99	\$ 44.58	\$ 46.71	\$ 46.12	\$ 48.58	\$ 50.74	\$ 45.33
40	26.39	20.81	23.76	23.75	21.48	19.80	21.73	22.65
41	\$ 23.51	\$ 28.18	\$ 20.82	\$ 22.96	\$ 24.64	\$ 28.78	\$ 29.01	\$ 22.68
42	\$127	\$128	\$111	\$116	\$134	\$122	\$135	\$121
43	134	131	114	120	137	131	138	127
44	26.11	18.89	22.02	16.16	15.42	16.50	15.76	16.69
45	220	193	186	178	195	185	198	179
46	87.7	93.0	90.2	92.2	92.7	86.7	91.6	88.5
47	48.7	37.9	39.6	35.2	34.6	38.6	36.3	29.4
48	23.5	14.5	17.1	11.7	9.5	14.1	14.1	11.0
49	.5	1.9	.9	3.8	1.3	.....	2.5	6.4
50	6.8	29.9	18.3	28.8	37.1	29.5	32.2	31.9
51	.4	.1	4.4	3.0	.4	.....	.4	.7
52	20.1	15.7	19.7	17.5	17.1	17.8	14.5	20.6
53	49.5	60.5	51.4	56.3	59.6	63.4	62.7	59.8
54	59.7	51.7	46.0	47.7	59.0	60.4	52.9	58.1
55	33.8	27.0	26.7	30.4	38.2	.....	28.6	22.9
56	24.4	22.9	23.1	22.6	22.3	24.6	24.7	23.2
57	\$ 23.68	\$ 14.43	\$ 19.46	\$ 16.91	\$ 14.44	\$ 16.44	\$ 14.77	\$ 20.51
58	142	131	130	133	128	132	128	133
59	27	11	16	15	12	14	16	22
60	\$212	\$223	\$216	\$225	\$211	\$187	\$226	\$197
61	228	185	207	200	179	201	151	207
62	4.00	4.15	4.16	4.32	3.75	3.26	3.73	3.56
63	\$ 9.88	\$ 8.48	\$ 9.83	\$ 9.01	\$ 9.22	\$ 8.90	\$ 8.68	\$ 9.98
64	12.56	9.53	11.99	11.45	10.66	10.80	10.58	12.02
65	1.69	1.04	1.48	2.14	.89	.97	1.04	1.06
66	2.20	1.66	1.76	1.69	1.16	1.15	1.31	1.56
67	1.54	1.93	1.87	1.83	1.83	1.78	1.86	1.62

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—*Continued*

Accounting Item	Kankakee	Logan	Menard	Will
Capitol investment, total	1 \$45 269	\$53 638	\$48 452	\$42 098
Land	2 26 115	35 081	30 286	23 302
Land improvements	3 1 274	927	732	1 050
Farm building	4 5 566	4 975	5 417	5 529
Horses	5 92	186	154	133
Cattle	6 2 522	2 829	3 473	3 393
Hogs	7 665	1 211	1 747	548
Sheep	8 97	106	55	20
Poultry	9 192	199	135	228
Feed and grain	10 5 510	4 931	3 601	4 923
Machinery and equipment	11 3 236	3 193	2 852	2 972
Income, net increases, total	12 \$11 997	\$12 944	\$11 814	\$11 402
Cattle	13 1 013	1 431	1 337	2 043
Dairy sales	14 2 797	466	501	2 359
Hogs	15 2 114	3 011	3 978	1 524
Sheep	16 17	95	77	11
Poultry and eggs	17 700	638	595	768
Farm products used in household	18 369	469	382	445
Feed and grain	19 4 822	6 642	4 788	4 105
AAA payment	20 105	129	106	83
Labor and miscellaneous	21 60	63	50	64
Expenses, net decreases, total	22 \$ 4 873	\$ 3 987	\$ 4 236	\$ 4 154
Land improvements	23 716	209	220	315
Farm buildings	24 559	330	362	393
Feed and grain	25 295	114	408	224
Machinery and equipment	26 1 923	1 986	1 722	1 709
Hired labor	27 761	597	830	960
Taxes	28 362	532	482	284
Livestock and miscellaneous	29 257	219	212	269
Receipts less expenses	30 \$ 7 124	\$ 8 957	\$ 7 578	\$ 7 248
Unpaid labor	31 1 864	1 852	1 755	1 694
Net farm earnings	32 \$ 5 260	\$ 7 105	\$ 5 823	\$ 5 554
Rate earned on investment, percent	33 11.6	13.2	12.0	13.2
Labor and management earnings	34 \$ 4 388	\$ 5 801	\$ 4 743	\$ 4 882
Excess of sales over expenses	35 6 284	7 135	6 750	5 400
Increase in inventory	36 471	1 353	446	1 403
Number of farms included	37 46	49	28	47
Size of farm, acres	38 258	270	290	220
Gross earnings per acre	39 \$ 46.57	\$ 47.96	\$ 40.72	\$ 51.71
Total expenses per acre	40 26.15	21.64	20.65	26.52
Net earnings per acre	41 \$ 20.42	\$ 26.32	\$ 20.07	\$ 25.19
Value of land per acre	42 \$101	\$130	\$104	\$106
Value of improved land per acre	43 103	132	111	109
Value of buildings per acre	44 21.61	18.43	18.67	25.07
Total investment per acre	45 176	199	167	191
Percent of land area tillable	46 92.9	93.1	87.2	88.5
Percent of tillable land in:				
Corn	47 41.5	36.8	34.8	41.8
Oats	48 17.2	16.5	13.2	21.6
Wheat	49 1.7	1.3	4.8	1.6
Soybeans for grain	50 20.1	27.9	29.1	14.0
Other cultivated crops	51 1.8	.7	1.3	2.3
Hay and pasture	52 17.7	16.8	16.8	18.7
Bushels per acre:				
Corn	53 49.1	63.6	55.2	52.1
Oats	54 44.4	55.4	50.7	60.6
Wheat	55 31.0	28.8	21.5	34.7
Soybeans	56 21.4	22.8	19.9	24.6
Feed fed per acre	57 \$ 17.07	\$ 16.73	\$ 17.74	\$ 21.09
Returns for \$100 feed fed	58 157	134	132	151
Number of litters farrowed	59 16	16	24	8
Returns per litter	60 \$229	\$230	\$196	\$320
Dairy returns per cow	61 296	147	167	260
Egg returns per hen	62 4.12	4.01	4.37	5.06
Power and machinery cost per crop acre	63 \$ 9.47	\$ 9.69	\$ 8.59	\$ 10.37
Labor cost per crop acre	64 12.09	10.99	11.68	14.62
Land improvements cost per acre	65 2.78	.77	.76	1.43
Farm buildings cost per acre	66 2.17	1.22	1.25	1.78
Taxes per acre	67 1.41	1.97	1.66	1.29

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—Continued

	Kendall	Edgar, Coles	Moultrie	Mason	Cass	Grundy	Morgan	Mont- gomery, Macoupin
1	\$53 654	\$52 324	\$52 890	\$33 692	\$44 788	\$51 839	\$45 662	\$27 112
2	27 365	34 590	38 036	22 379	27 832	30 414	29 135	13 760
3	1 247	1 035	653	446	798	1 169	763	827
4	7 477	4 256	3 712	2 963	3 709	5 378	3 840	3 369
5	161	160	106	131	235	147	202	177
6	5 080	2 371	1 748	1 241	2 853	2 875	2 747	1 945
7	2 354	1 218	535	662	1 673	1 051	1 986	1 210
8	222	47	26	7	35	20	128	112
9	260	173	122	141	133	188	159	146
10	6 413	5 420	4 720	3 087	4 672	6 938	4 140	3 199
11	3 075	3 054	3 232	2 635	2 848	3 659	2 562	2 372
12	\$13 835	\$12 738	\$12 925	\$ 8 214	\$12 057	\$13 758	\$12 711	\$ 9 219
13	2 559	1 495	1 031	626	2 372	1 655	1 957	1 284
14	2 017	776	1 124	406	377	2 241	515	1 763
15	6 283	3 771	1 175	1 705	4 246	3 049	4 586	3 417
16	133	93	22	6	44	18	169	104
17	1 136	584	420	676	548	667	640	521
18	417	500	370	407	472	363	411	387
19	1 040	5 294	8 596	4 201	3 821	5 646	4 263	1 579
20	100	126	116	108	110	80	109	98
21	150	99	71	79	67	39	61	66
22	\$ 5 212	\$ 4 475	\$ 4 061	\$ 2 910	\$ 4 854	\$ 4 036	\$ 4 203	\$ 4 056
23	329	327	238	170	311	511	283	293
24	615	362	281	229	318	429	342	333
25	898	326	1	97	1 013	61	399	1 087
26	1 739	1 881	2 002	1 359	1 810	1 772	1 715	1 438
27	902	882	800	502	728	626	775	441
28	382	491	540	418	445	371	443	277
29	347	206	199	135	229	266	246	187
30	\$ 8 623	\$ 8 263	\$ 8 864	\$ 5 304	\$ 7 203	\$ 9 722	\$ 8 508	\$ 5 163
31	1 939	1 672	1 783	1 764	1 925	1 953	1 766	1 750
32	\$ 6 684	\$ 6 591	\$ 7 081	\$ 3 540	\$ 5 278	\$ 7 769	\$ 6 742	\$ 3 413
33	12.5	12.6	13.4	10.5	11.8	15.0	14.8	12.6
34	\$ 5 440	\$ 5 381	\$ 5 799	\$ 3 170	\$ 4 417	\$ 6 623	\$ 5 790	\$ 3 283
35	9 088	7 393	7 938	4 266	6 255	9 903	5 878	4 566
36	-882	370	556	631	476	-544	2 219	210
37	32	46	47	25	33	20	44	44
38	226	298	316	323	323	287	277	212
39	\$ 61.27	\$ 42.67	\$ 40.89	\$ 25.45	\$ 37.36	\$ 47.98	\$ 45.90	\$ 43.42
40	31.67	20.59	18.49	14.48	21.00	20.89	21.55	27.34
41	\$ 29.60	\$ 22.08	\$ 22.40	\$ 10.97	\$ 16.36	\$ 27.09	\$ 24.35	\$ 16.08
42	\$121	\$116	\$120	\$ 69	\$ 86	\$106	\$105	\$ 65
43	125	123	128	75	103	113	116	72
44	33.11	14.26	11.74	9.18	11.49	18.76	13.87	15.87
45	238	175	167	104	139	181	165	128
46	89.9	87.6	88.2	85.9	75.2	84.6	83.3	82.1
47	48.2	32.5	31.5	30.5	45.6	44.0	33.6	21.2
48	23.0	10.4	8.8	11.3	11.9	20.5	10.4	7.8
49	1.2	5.7	1.6	21.5	8.0	1.6	9.5	14.2
50	4.3	27.6	39.9	9.4	13.6	15.3	27.7	29.1
51	.3	1.8	1.5	11.0	5.2	.3	.5	2.4
52	23.0	22.0	16.7	16.3	15.7	18.3	18.3	25.3
53	57.6	55.3	55.7	41.7	39.8	54.1	58.7	48.9
54	61.9	41.4	44.4	41.6	41.6	50.2	47.9	38.8
55	34.6	23.8	29.3	15.8	19.6	11.0	20.5	18.6
56	26.6	21.3	21.7	15.0	37.8	25.2	22.7	20.5
57	\$ 38.64	\$ 17.39	\$ 8.67	\$ 8.20	\$ 18.06	\$ 17.61	\$ 21.61	\$ 21.02
58	143	137	148	142	137	157	137	166
59	26	18	8	12	23	15	24	17
60	\$217	\$271	\$206	\$197	\$194	\$260	\$228	\$218
61	269	187	198	165	138	253	208	290
62	5.48	3.76	3.36	4.14	3.98	4.30	3.99	3.51
63	\$ 10.24	\$ 9.06	\$ 8.38	\$ 6.20	\$ 9.71	\$ 8.83	\$ 9.36	\$ 10.91
64	15.45	11.25	10.32	9.39	12.45	11.92	12.16	15.03
65	1.46	1.10	.75	.53	.96	1.78	1.02	1.38
66	2.72	1.21	.89	.71	.99	1.50	1.24	1.57
67	1.69	1.64	1.71	1.29	1.38	1.29	1.60	1.30

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—Continued

Accounting Item		Christian, Shelby	Adams, Schuyler	Brown, Pike, Scott	Greene, Jersey
Capital investment, total	1	\$34 585	\$35 615	\$35 952	\$32 118
Land	2	20 236	18 345	19 757	17 165
Land improvements	3	948	1 003	848	940
Farm buildings	4	3 043	4 108	3 399	3 636
Horses	5	116	252	353	262
Cattle	6	2 786	2 762	3 211	2 351
Hogs	7	821	1 632	2 117	1 103
Sheep	8	43	70	222	14
Poultry	9	176	122	88	142
Feed and grain	10	3 514	4 304	3 845	3 789
Machinery and equipment	11	2 902	3 017	2 112	2 716
Income, net increases, total	12	\$ 9 328	\$ 9 192	\$12 335	\$ 9 429
Cattle	13	1 305	2 062	2 954	1 374
Dairy sales	14	1 133	725	358	2 245
Hogs	15	2 710	4 873	6 717	3 090
Sheep	16	39	70	193	22
Poultry and eggs	17	665	396	249	487
Farm products used in household	18	320	382	391	433
Feed and grain	19	2 992	470	1 298	1 609
AAA payment	20	97	142	139	94
Labor and miscellaneous	21	67	72	36	75
Expenses, net decreases, total	22	\$ 3 458	\$ 4 589	\$ 6 022	\$ 4 304
Land improvements	23	268	356	221	279
Farm buildings	24	253	327	344	319
Feed and grain	25	297	1 187	2 730	877
Machinery and equipment	26	1 555	1 411	1 327	1 430
Hired labor	27	553	738	772	839
Taxes	28	352	372	399	354
Livestock and miscellaneous	29	180	198	229	206
Receipts less expenses	30	\$ 5 870	\$ 4 603	\$ 6 313	\$ 5 125
Unpaid labor	31	1 604	1 809	1 675	1 763
Net farm earnings	32	\$ 4 266	\$ 2 794	\$ 4 638	\$ 3 362
Rate earned on investment, percent	33	12.3	7.8	12.9	10.5
Labor and management earnings	34	\$ 3 808	\$ 2 217	\$ 4 114	\$ 2 978
Excess of sales over expenses	35	6 096	5 086	5 774	4 700
Increase in inventory	36	-546	-865	148	-8
Number of farms included	37	35	30	24	47
Size of farm, acres	38	243	309	351	270
Gross earnings per acre	39	\$ 38.34	\$ 29.78	\$ 35.10	\$ 34.86
Total expenses per acre	40	20.81	20.73	21.90	22.43
Net earnings per acre	41	\$ 17.53	\$ 9.05	\$ 13.20	\$ 12.43
Value of land per acre	42	\$ 83	\$ 59	\$ 56	\$ 63
Value of improved land per acre	43	88	69	70	72
Value of buildings per acre	44	12.51	13.31	9.67	13.44
Total investment per acre	45	142	115	102	119
Percent of land area tillable	46	88.2	74.2	63.3	75.2
Percent of tillable land in:					
Corn	47	26.5	24.9	31.6	28.7
Oats	48	7.9	14.6	12.0	6.3
Wheat	49	5.1	7.8	11.4	14.1
Soybeans (for grain)	50	35.6	16.6	8.3	19.6
Other cultivated crops	51	1.2	2.9	6.4	3.8
Hay and pasture	52	23.7	33.2	30.3	27.5
Bushels per acre					
Corn	53	48.4	38.1	50.2	44.5
Oats	54	34.6	25.3	29.0	33.7
Wheat	55	24.2	19.9	21.1	17.1
Soybeans	56	19.0	16.1	19.9	18.4
Feed fed per acre	57	\$ 16.12	\$ 17.15	\$ 20.37	\$ 16.25
Returns for \$100 feed fed	58	156	159	151	172
Number of hives per acre	59	15	24	38	18
Returns per litter	60	\$217	\$223	\$207	\$199
Dairy returns per cow	61	184	119	188	230
Egg returns per hen	62	3.77	3.11	2.96	3.67
Power and machinery cost per crop acre	63	\$ 9.27	\$ 9.63	\$ 9.85	\$ 10.45
Labor cost per crop acre	64	11.65	14.85	14.90	16.18
Land improvements cost per acre	65	1.10	1.15	.63	1.03
Farm buildings cost per acre	66	1.04	1.06	.98	1.18
Taxes per acre	67	1.45	1.21	1.14	1.31

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—Continued

	Madison	Randolph	St. Clair, Monroe	Bond, Clinton	Washing- ton	Fayette, Effingham	Jefferson, Hamilton, Franklin, William- son, Perry	Jasper, Clark, Crawford
1	\$21 235	\$19 323	\$27 152	\$23 126	\$18 560	\$16 407	\$14 619	\$24 482
2	10 477	8 426	14 826	11 905	10 331	7 612	7 572	12 558
3	399	715	418	601	506	589	596	751
4	2 559	2 711	3 131	2 724	1 971	1 971	1 503	2 646
5	208	237	347	173	219	187	160	137
6	1 902	1 685	1 638	1 912	1 195	1 489	1 247	1 626
7	452	502	639	610	305	301	382	1 199
8	15	64	37	69	59	80	53	27
9	182	188	225	194	190	248	137	221
10	2 413	2 674	3 234	2 415	1 874	2 035	1 483	3 271
11	2 628	2 121	2 657	2 523	1 910	1 895	1 486	2 046
12	\$ 7 476	\$ 5 890	\$ 7 074	\$ 8 316	\$ 5 419	\$ 5 529	\$ 4 290	\$ 7 623
13	709	790	547	715	477	642	856	1 116
14	3 405	1 721	2 044	3 184	1 920	1 570	660	599
15	1 399	1 535	1 786	1 996	709	1 015	999	3 230
16	18	100	30	63	63	107	91	35
17	730	708	958	721	787	940	535	878
18	401	401	479	447	354	367	382	471
19	664	434	1 062	1 034	906	754	613	1 151
20	95	137	112	118	167	109	117	122
21	55	64	56	38	36	25	37	21
22	\$ 3 199	\$ 3 012	\$ 3 098	\$ 4 059	\$ 2 040	\$ 2 721	\$ 2 406	\$ 3 444
23	238	280	184	270	260	349	378	364
24	251	231	248	257	164	219	159	207
25	810	750	569	1 351	32	504	390	898
26	1 224	1 087	1 240	1 305	973	987	945	1 272
27	297	332	402	471	269	325	287	304
28	196	180	274	230	179	185	142	250
29	183	152	181	175	163	152	105	149
30	\$ 4 277	\$ 2 878	\$ 3 976	\$ 4 257	\$ 3 379	\$ 2 808	\$ 1 884	\$ 4 179
31	2 341	1 647	1 982	1 779	1 885	1 615	1 303	1 644
32	\$ 1 936	\$ 1 231	\$ 1 994	\$ 2 478	\$ 1 494	\$ 1 193	\$ 581	\$ 2 535
33	9.1	6.4	7.3	10.7	8.0	7.3	4.0	10.4
34	\$ 2 153	\$ 1 412	\$ 1 871	\$ 2 431	\$ 1 693	\$ 1 506	\$ 821	\$ 2 576
35	3 767	3 097	4 294	3 685	3 025	2 251	1 322	4 126
36	109	-620	-797	125	0	190	180	-418
37	55	50	47	39	26	36	42	40
38	198	234	227	251	228	228	251	298
39	\$ 37.83	\$ 25.14	\$ 31.19	\$ 33.13	\$ 23.73	\$ 24.27	\$ 17.08	\$ 25.56
40	28.03	19.89	22.40	23.26	17.19	19.03	14.77	17.06
41	\$ 9.80	\$ 5.25	\$ 8.79	\$ 9.87	\$ 6.54	\$ 5.24	\$ 2.31	\$ 8.50
42	\$ 53	\$ 36	\$ 65	\$ 47	\$ 45	\$ 33	\$ 30	\$ 42
43	56	39	72	51	49	37	32	46
44	12.95	11.57	13.81	10.85	8.63	8.65	5.99	8.87
45	107	82	120	92	81	72	58	82
46	85.4	82.2	83.6	80.8	81.3	78.0	86.1	80.7
47	22.3	12.3	19.7	17.2	11.7	15.0	10.1	23.0
48	5.7	6.5	7.8	11.2	10.7	9.1	3.1	3.9
49	23.6	25.5	28.6	19.7	32.4	10.2	19.5	11.8
50	9.8	6.3	9.0	15.4	7.5	20.6	4.5	15.4
51	3.1	17.1	7.7	10.7	9.9	12.1	14.0	13.3
52	35.5	32.3	27.2	25.8	27.8	33.0	48.8	32.6
53	37.4	36.3	40.1	27.2	29.2	33.2	37.6	39.4
54	27.7	22.0	24.5	29.7	20.6	24.9	13.5	19.6
55	20.8	15.1	18.7	21.2	18.1	22.9	14.4	18.1
56	13.3	10.2	17.5	12.5	12.1	14.1	11.0	16.4
57	\$ 18.87	\$ 13.01	\$ 16.16	\$ 16.59	\$ 10.41	\$ 12.13	\$ 8.01	\$ 15.14
58	176	169	157	169	178	164	172	138
59	9	8	11	10	6	7	6	16
60	\$213	\$252	\$234	\$216	\$203	\$235	\$198	\$229
61	267	209	230	239	212	208	192	172
62	3.79	3.82	4.20	3.42	3.95	3.50	3.42	4.03
63	\$ 10.78	\$ 9.88	\$ 10.20	\$ 9.29	\$ 7.90	\$ 9.04	\$ 9.48	\$ 8.53
64	19.80	15.31	16.05	13.81	14.78	15.10	14.05	11.85
65	1.20	1.20	.81	1.08	1.14	1.53	1.51	1.22
66	1.27	.99	1.09	1.02	.72	.96	.63	.69
67	.99	.77	1.21	.92	.78	.81	.57	.84

(Continued)

TABLE 14.—SUMMARY OF BUSINESS RECORDS FROM 2,917 ILLINOIS FARMS BY COUNTIES AND BY GROUPS OF COUNTIES, 1945—*Concluded*

Accounting Item	Clay, Richland, Wayne, Marion	Edwards	Gallatin, White, Wabash, Lawrence, Saline	Massac, Jackson, Johnson, Pope, Hardin	
Capital investment, total	1	\$16 003	\$17 025	\$23 517	\$12 907
Land	2	8 040	8 882	13 248	6 256
Land improvements	3	743	678	726	356
Farm buildings	4	1 950	1 660	2 878	1 348
Horses	5	186	190	204	363
Cattle	6	1 734	1 118	1 585	1 422
Hogs	7	293	594	627	373
Sheep	8	131	79	.....	103
Poultry	9	166	207	149	174
Feed and grain	10	1 372	1 978	2 407	1 441
Machinery and equipment	11	1 388	1 639	1 693	1 071
Income, net increases, total	12	\$ 4 170	\$ 5 967	\$ 6 967	\$ 4 254
Cattle	13	831	863	761	766
Dairy sales	14	684	229	674	757
Hogs	15	866	2 248	2 068	968
Sheep	16	165	75	.....	105
Poultry and eggs	17	559	789	459	525
Farm products used in household	18	352	381	397	404
Feed and grain	19	594	1 217	2 472	597
AAA payment	20	97	144	100	92
Labor and miscellaneous	21	22	21	36	40
Expenses, net decreases, total	22	\$ 2 402	\$ 2 326	\$ 3 015	\$ 1 593
Land improvements	23	351	438	347	168
Farm buildings	24	188	129	224	120
Feed and grain	25	409	320	245	166
Machinery and equipment	26	934	876	1 333	699
Hired labor	27	201	244	503	191
Taxes	28	195	215	249	154
Livestock and miscellaneous	29	124	104	114	95
Receipts less expenses	30	\$ 1 768	\$ 3 641	\$ 3 952	\$ 2 661
Unpaid labor	31	1 278	1 342	1 454	1 331
Net farm earnings	32	\$ 490	\$ 2 299	\$ 2 498	\$ 1 330
Rate earned on investment, percent	33	3.1	13.5	10.6	10.3
Labor and management earnings	34	\$ 660	\$ 2 476	\$ 2 300	\$ 1 653
Excess of sales over expenses	35	1 395	2 626	2 396	1 729
Increase in inventory	36	21	634	1 159	528
Number of farms included	37	61	44	33	33
Size of farm, acres	38	286	232	252	237
Gross earnings per acre	39	\$ 14.61	\$ 25.68	\$ 27.65	\$ 17.92
Total expenses per acre	40	12.89	15.79	17.74	12.32
Net earnings per acre	41	\$ 1.72	\$ 9.89	\$ 9.91	\$ 5.60
Value of land per acre	42	\$ 28	\$ 38	\$ 53	\$ 26
Value of improved land per acre	43	31	41	56	33
Value of buildings per acre	44	6.83	7.15	11.42	5.68
Total investment per acre	45	56	73	93	54
Percent of land area tillable	46	83.4	82.0	86.4	69.6
Percent of tillable land in:					
Corn	47	9.6	20.4	28.9	17.1
Oats	48	4.9	3.7	1.1	2.8
Wheat	49	11.9	21.6	15.8	9.4
Soybeans for grain	50	8.9	5.5	7.0	4.5
Other cultivated crops	51	16.0	14.7	16.1	8.8
Hay and pasture	52	48.7	34.1	31.1	57.4
Bushels per acre: Corn	53	25.6	51.8	45.2	40.7
Oats	54	18.6	24.9	15.8	13.4
Wheat	55	17.3	15.8	16.6	16.3
Soybeans	56	9.6	18.4	14.3	16.8
Feed fed per acre	57	\$ 7.92	\$ 12.21	\$ 11.18	\$ 7.78
Returns for \$100 feed fed	58	149	159	152	186
Number of litters farrowed	59	5	12	10	6
Returns per litter	60	\$184	\$216	\$233	\$190
Dairy returns per cow	61	172	141	169	166
Egg returns per hen	62	3.42	3.96	3.15	3.21
Power and machinery cost per crop acre	63	\$ 7.61	\$ 8.21	\$ 10.03	\$ 10.56
Labor cost per crop acre	64	10.23	12.35	13.03	17.76
Land improvements cost per acre	65	1.23	1.89	1.38	.71
Farm buildings cost per acre	66	.66	.56	.89	.51
Taxes per acre	67	.68	.93	.99	.65

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1936 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 438 (1937); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8946. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ For 1929-1942 inclusive, from special mimeographed release by Bureau of Agricultural Economics; currently, not adjusted for seasonal variation from Poultry and Egg Situation, beginning with March, 1943, issue. ⁹ Survey of Current Business, December, 1942, and subsequent monthly issues, unadjusted for seasonal variation. Prior to 1939, "factory payroll" index, with 1923-1925 base, multiplied by 1.087 to obtain the "Weekly Wages" index with 1939 base. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board, September, 1933, and subsequent issues; Survey of Current Business, seasonally adjusted. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 438; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE Cooperative Agricultural Extension
Work Acts of May 8 and June 30, 1914

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Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1931	73	65	77	110	84	77	71	95	74	75
1932	65	48	52	96	60	57	60	73	51	58
1933	66	51	56	94	62	68	75	70	54	69
1934	75	65	76	100	73	73	74	80	70	75
1935	80	79	103	101	90	86	85	86	80	87
1936	81	81	107	100	104	109	110	101	93	103
1937	86	86	120	104	108	116	112	107	111	113
1938	79	69	87	98	99	107	109	90	85	89
1939	77	65	81	97	99	107	110	106	100	109
1940	78	68	86	98	107	114	116	115	114	125
1941	87	82	109	103	142	146	140	138	168	162
1942	99	105	140	117	197	200	169	171	245	199
1943	103	123	166	127	251	243	191	209	330	239
1944	104	124	168	132	265	249	189	231	346	236
1945	106	128	171	136	283	246	180	236	288	203
1945 June...	106	130	173	135	287	227	168	241	315	220
July...	106	129	172	135	282	208	154	240	299	210
Aug...	106	127	171	135	274	201	140	233	267	187
Sept...	105	124	169	136	256	192	141	227	224	169
Oct...	106	127	169	137	261	346	253	230	223	162
Nov...	107	131	170	137	282	332	242	232	223	168
Dec...	107	132	171	138	282	256	186	231	226	164
1946 Jan...	107	130	170	138	281	231	167	229	229	160
Feb...	108	131 ¹¹	172	139	305	240	173	226	210	152
Mar...	109	133	175	140	285	246	176	230	233	168
Apr...	110	135	177	141	273	...	...	233	249	164
May...	111	138	186	144	...	...	...	233	246	159 ¹¹
June...	112	140	186	146	...	...	...	...	...	170 ¹¹

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			July 1945	Current months		
	1935-39	1944	1945		May	June	July
Corn, bu.....	\$.66	\$1.07	\$1.07	\$1.08	\$1.35	\$1.36	\$2.05
Oats, bu.....	.31	.74	.68	.64	.81	.81	.81
Wheat, bu.....	.86	1.54	1.58	1.54	1.81	1.82	1.97
Barley, bu.....	.62	1.16	1.09	1.05	1.26	1.26	1.35
Soybeans, bu.....	.90	1.91	2.09	2.10	2.10	2.10	2.30
Hogs, cwt..	8.52	13.47	14.25	14.20	14.50	14.40	17.60
Beef cattle, cwt..	7.88	11.89	13.12	14.70	14.90	15.00	18.30
Lamb, cwt..	8.36	13.52	13.77	14.40	14.80	15.00	17.00
Milk cows, head.	58.00	124.50	125.50	125.00	139.00	142.00	153.00
Veal calves, cwt..	8.66	13.32	14.22	14.80	14.80	15.80	17.70
Sheep, cwt..	3.58	5.67	6.38	7.10	6.70	6.80	8.20
Butterfat, lb.....	.27	.49	.48	.48	.48	.49	.69
Milk, cwt.....	1.68	3.02	2.95	2.85	3.00	3.20	3.35
Eggs, doz.....	.19	.31	.35	.33	.30	.30	.31
Chickens, lb.....	.15	.24	.25	.28	.25	.26	.30
Wool, lb.....	.25	.42	.44	.45	.43	.43	.44
Apples, bu.....	1.08	3.11	2.99	2.80	4.30	3.05	3.60
Hay, ton.....	9.39	17.65	17.72	17.00	14.50	14.50	13.50
Potatoes, bu.....	.91	1.83	2.06	2.55	1.70	1.70	1.85

¹⁻¹¹ For sources of data in tables see previous page.

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CHANGES IN MILK PRODUCTION AND SALES IN ILLINOIS COUNTIES

R. J. MUTTI

The following article summarizes the principal changes in milk production that have occurred within Illinois as disclosed by county data published in United States census reports.

Development Prior to 1920

Milk production by counties was first recorded in the Census of 1890, which included data on milk production in 1889. The Census of 1850 recorded the number of milk cows on farms June 1, 1850 and the production of farm butter and cheese during the year ending June 1, 1850.

Specialized milk producing areas had only begun to develop in Illinois by 1850, and by present standards the milk cow population in all counties was sparse. Milk cows were distributed throughout the state chiefly according to human population. Cook county, with 8,596 milk cows, ranked first in numbers, followed in order by Sangamon, Adams, Fulton, St. Clair, Madison, McHenry, Lake, Will, and LaSalle counties. Only 23 counties had more than 4,000 milk cows each, and 10 of the small counties each had less than 1,000 milk cows. By 1890 only 13 of the 102 counties had less than 4,000 milk cows, and a concentrated milk producing area in northern Illinois had been developed. Economic factors including a rapidly expanding and nearby market for fluid milk and an excellent railway network, along with natural factors of temperature, rainfall, topography, and soils, favored this development.

Milk production for Illinois in 1919 was almost identical to that in 1889. Decreases in production had occurred throughout an area just south of the counties bordering on Wisconsin down to an imaginary line running across the state through the southern boundary of Sangamon county. This area is in the center of the corn belt and had alternative farm income opportunities in selling grain or producing livestock. South of this area

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

increases in milk production were the general rule, though small decreases occurred in several counties bordering on the Wabash and Ohio rivers.

The greatest increases in density of production (gallons of milk produced per acre of land) between 1889 and 1919 occurred in Bond, Boone, Lake, Stephenson, Clinton, and Madison counties. Each of these counties had fluid milk market outlets, and in addition large condenseries which had been established in or near them were producing at a high level in 1919. Other counties which had significant increases in milk production include Effingham, Fayette, McHenry, Jo Daviess, Washington, and Montgomery — and for nearly the same reasons already mentioned.

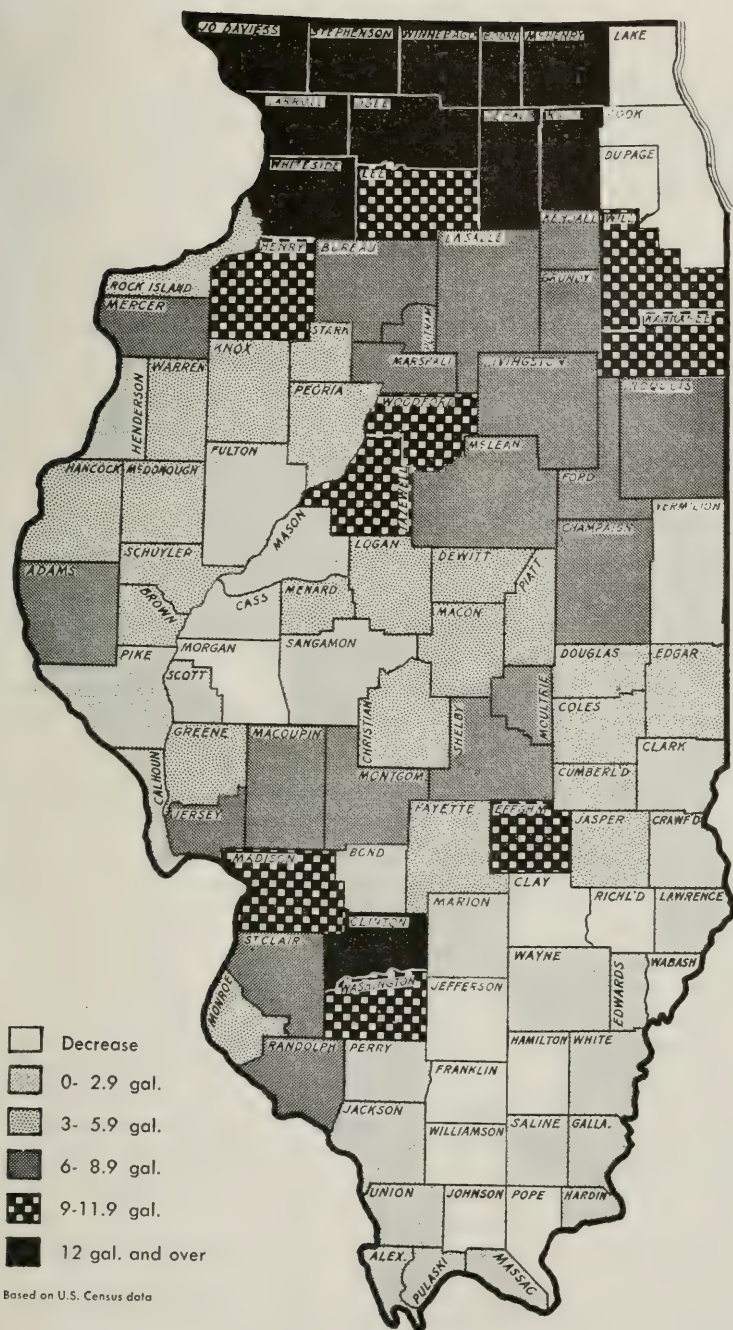
The widespread adoption of farm cream separators and a highly developed railway network led to the establishment of several large centralizer creameries between 1909 and 1919, and resulted in a shift away from farm butter production and from factories operating on a whole milk basis. By 1919 the density of milk production was greatest around the large cities and in the areas with condenseries. Only a small amount of milk went to cheese factories, but some areas had become important in the sale of butterfat to creameries.

Milk Production Changes, 1919 to 1944

The net change in milk production per acre during the 25-year period, 1919 to 1944, is shown in Figure 1. Boone, McHenry, Stephenson, and Kane counties each had increases exceeding 25 gallons of milk per acre of land, and seven other counties (six in northern and one in southwestern Illinois) had increases of over 12 gallons. As the greatest increases in milk production occurred in the areas with large fluid milk outlets or with large condenseries, the changes occurring were similar to those from 1889 to 1919. A few exceptions occurred: notably Kane and DeKalb counties (with large decreases from 1889 to 1919 and large increases from 1919 to 1944) and Bond county (with only a small increase from 1919 to 1944 following the greatest increase of all counties from 1889 to 1919).

Significant increases occurred in a broad belt of counties across the central part of the state. In many of these counties milk production in 1944 was more than twice as great as in 1919. Dairying was not the major enterprise on most farms in this area, but its expansion resulted from milk prices favorable in relation to livestock prices during most of this period, from a more complete utilization of feeds produced on the farm, and from adoption of labor-saving equipment which made more time available for the dairy enterprise.

In 13 counties the amount of milk produced in 1944 was smaller than in 1919, but the decrease was large only in DuPage county. Nonagricul-



Based on U.S. Census data

FIG. 1. — CHANGE IN GALLONS OF MILK PRODUCED PER ACRE OF LAND AREA, ILLINOIS COUNTIES, 1919 TO 1944

tural use of land for business and home sites was one factor responsible for decreases in several of these counties. The productivity of farmland measured in feed units was considerably below the state average in most counties having decreases or only small increases in milk production.

Changes in Milk Production Between Census Years

According to census records, the increase in milk production in Illinois between 1939 and 1944 was greater than in any other five-year period, though increases from 1919 to 1924 and 1924 to 1929 were also large (Figure 2). In each of these periods the growth of population and the expansion of business activity favored an expansion in dairying. Wartime demands for dairy products also contributed to the expansion in the 1939-1944 period.

1919 to 1924. Only ten counties experienced increases in production exceeding five gallons per acre. Seven of these counties were located in the center of the Chicago milkshed, and the other three in the important dairy product manufacturing area of northwestern Illinois. Significant increases outside these areas occurred in Effingham, Champaign, and Fayette counties. Seventeen counties experienced decreases in production, but they exceeded one gallon per acre in only Bond, Schuyler, and Kendall counties.

1924 to 1929. The greatest increases in milk production occurred in the western half of the state throughout an area where more than half the milk produced was marketed as cream. Smaller increases occurred in other cream-selling areas. During this period prices paid Illinois farmers for butterfat increased more than prices paid for market milk. Large

TABLE 1. — MILK PRODUCTION PER ACRE OF LAND AREA, ILLINOIS COUNTIES, 1889, 1919, 1924, 1929, 1934, 1939, AND 1944

Production (gallons)	Number of counties in						
	1889	1919	1924	1929	1934	1939	1944
2.1 to 5.9	39*	29	18	6	5	8	7
6.0 to 9.9	40	52	54	34	34	36	34
10.0 to 13.9	8	7	11	38	34	33	21
14.0 to 17.9	4	3	4	8	11	7	18
18.0 to 21.9	3	5	6	5	5	6	5
22.0 to 43.9	5	2	4	8	9	8	13
44 and over	3	4	5	3	4	4	4
Total counties	102	102	102	102	102	102	102
Gallons of milk produced per acre							
Highest county	65.5	65.6	79.3	74.9	89.2	90.6	104.1
Lowest county	1.7	2.6	3.0	3.7	3.1	3.7	3.7
State average	10.3	10.4	12.2	14.1	14.9	14.7	16.9

Based on U. S. census data. * Production in Alexander county was 1.7 gallons per acre.

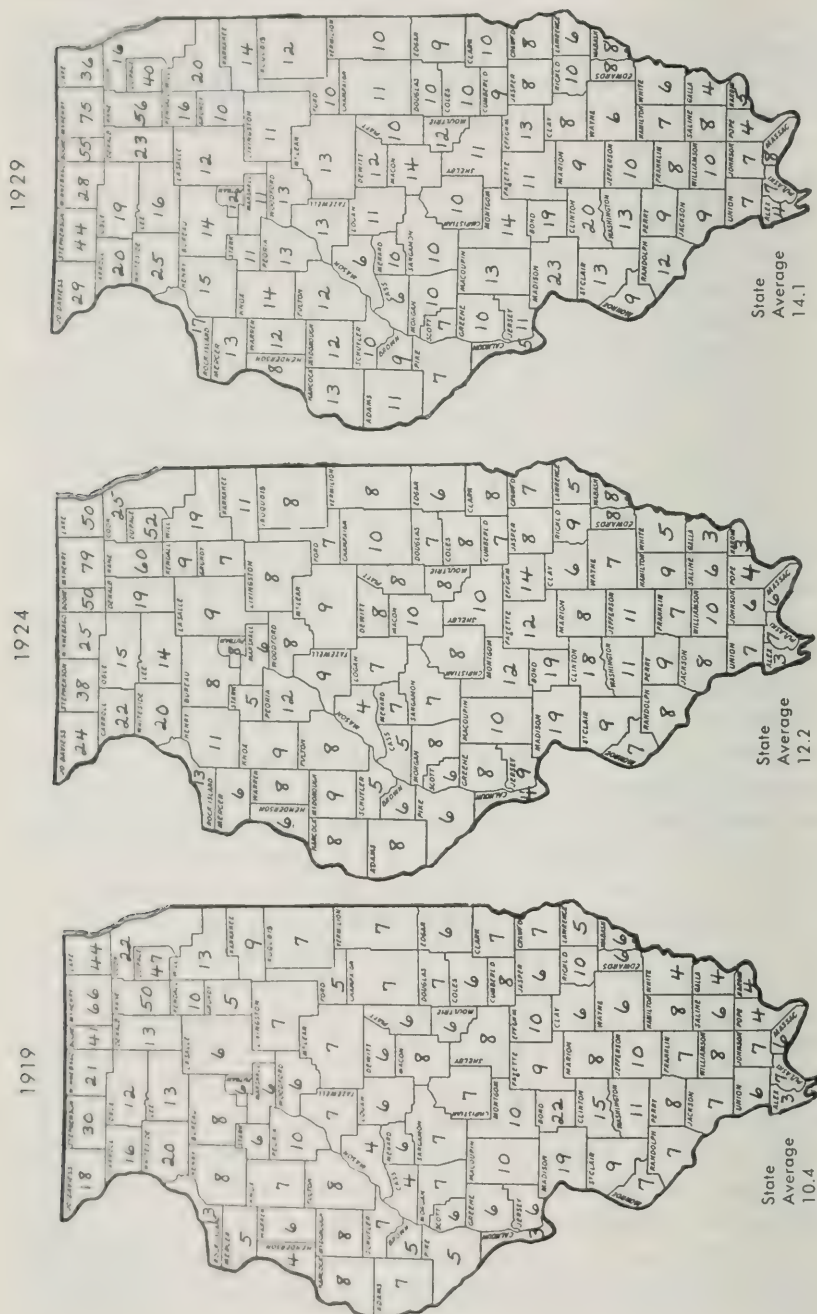
decreases in production occurred in only a few counties in the extreme northeastern corner of Illinois. The increase in nonspecialized dairy areas is indicated further by the decrease in number of counties producing less than 10 gallons of milk per acre and the increase in those producing from 10 to 18 gallons (Table 1).

1929 to 1934. Many counties experienced small decreases in milk production. Decreases occurred mainly in the cream-selling areas, probably because farm prices of butterfat declined more than farm prices of milk (1934 prices were 50 and 62 percent, respectively, of those in 1929). The drouth in 1934 was another factor which caused lower output in some counties. The price of milk in relation to feed price was much more favorable to dairymen in 1929 than in 1934, but milk prices were more favorable relative to livestock prices in 1934 than in 1929. Large increases in milk production between 1929 and 1934 occurred in the extreme northeastern counties; many of these had had decreases in the preceding five-year period.

1934 to 1939. Milk production on Illinois farms in 1939 was less than in 1934. Although decreases occurred in over half the counties, they were small in most instances. Four counties bordering on Cook county had relatively large decreases, reflecting other uses of the land. Declines in milk production averaged greatest in the eastern half of the state. Milk prices in the northeast and east districts were about the same in 1939 as in 1934 whereas in the other districts milk prices averaged 25 cents per hundred pounds greater in 1939 than in 1934. Expansion of soybean production, especially in the eastern part of the state, may have been another factor restricting milk production increases. The greatest increases in milk production occurred in Boone, Winnebago, and Stephenson counties—each of which had experienced relatively large increases in the three preceding five-year periods—and in Clinton, Madison, and Washington counties. Each of these counties supplies milk for fluid markets.

For the decade 1929 to 1939, the declines in milk production in western, central, and southeastern Illinois stand out. Cream sales were more important than whole milk sales in these areas, and competition from livestock for use of resources was especially keen. The price of butterfat in relation to whole milk was less favorable in 1939 than in 1929, so that farmers selling cream had less incentive to maintain milk production.

1939 to 1944. The increase in milk production between 1939 and 1944 was greater than in any of the preceding five-year periods. The counties with the greatest density of production—Boone, Kane, McHenry,



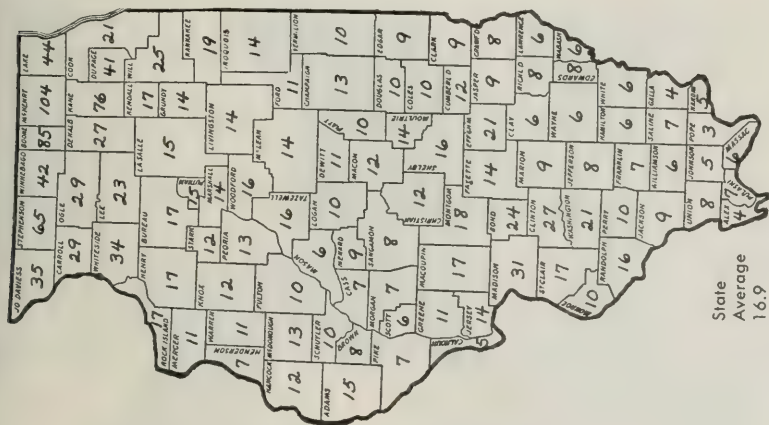


FIG. 2. — (CONTINUED)

Based on U.S. Census data

and Stephenson — experienced the greatest increases in output, followed by other counties in northern and southwestern Illinois, the specialized milk production areas. Seventeen counties had increases of over four gallons per acre of land, and another 20 counties (nearly all of which had fluid milk outlets) had increases ranging from two to four gallons (also note changes shown in Table 1). Despite this record increase for the state, 27 counties produced less milk in 1944 than in 1939. These counties were located chiefly in the extreme southern, southeastern, and west central sections of the state (mainly cream-selling areas for in only two of these 27 counties, Sangamon and Rock Island, was over half the milk production sold as milk). During this period prices definitely favored whole milk marketing over cream sales.

Milk Production per Capita

Increases in milk production in Illinois between 1919 and 1939 exceeded the increase in population. The 1939 figure of 67 gallons per capita was 9.7 gallons higher than in 1919 and four-tenths of a gallon higher than in 1929 (note changes in Table 2). Inasmuch as the annual consumption of milk and milk products in the United States averaged 94.3 gallons per capita for the period 1924 through 1944, it is apparent that Illinois does not produce enough milk to supply all of its citizens. The variation among counties in per capita milk production is presented in Figure 3.

Counties which produced less than 50 gallons of milk per capita would have a supply inadequate for even fluid milk and cream requirements at current levels of consumption. Fifteen of the 26 counties shown as having a production of 50 to 99 gallons per capita produced over 90 gallons per

TABLE 2. — MILK PRODUCTION PER CAPITA, ILLINOIS COUNTIES, 1889, 1919, 1929, AND 1939

Production (gallons)	Number of counties in			
	1889	1919	1929	1939
Less than 50	3	11	7	9
50 to 99	51	51	22	26
100 to 149	28	21	24	23
150 to 199	8	7	21	12
200 to 249	1	6	13	17
250 to 299	10	5	12	12
300 and over	1	1	3	3
Total counties	102	102	102	102
Gallons of milk produced per capita				
Highest county	906	773	835	950
Lowest county	12	4	2	3
State average	96	57	66	67

Based on U. S. census data.

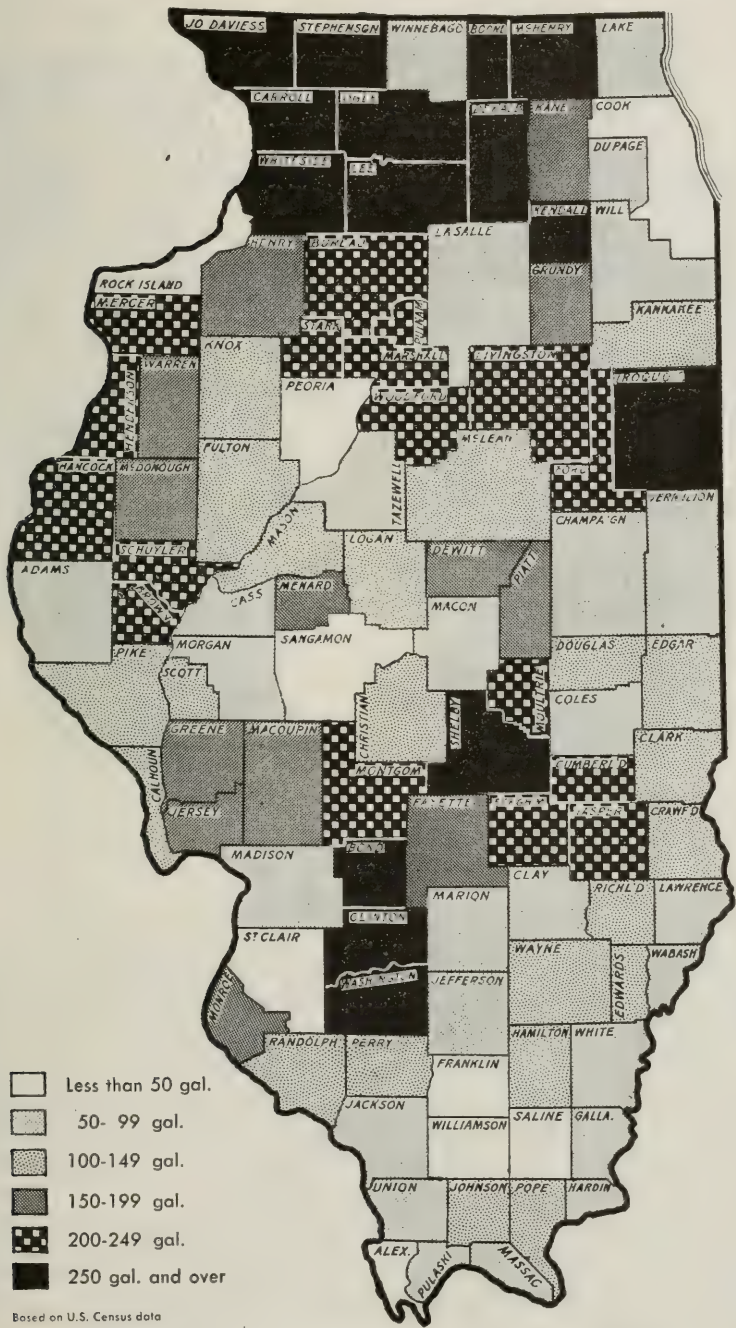


FIG. 3. — GALLONS OF MILK PRODUCED PER CAPITA, ILLINOIS COUNTIES, 1939

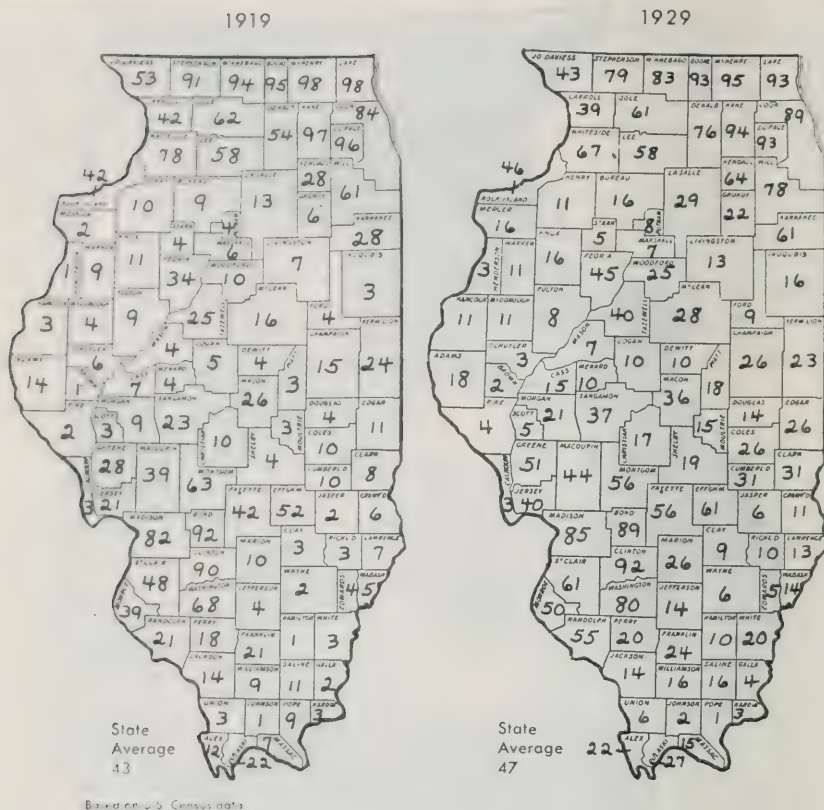
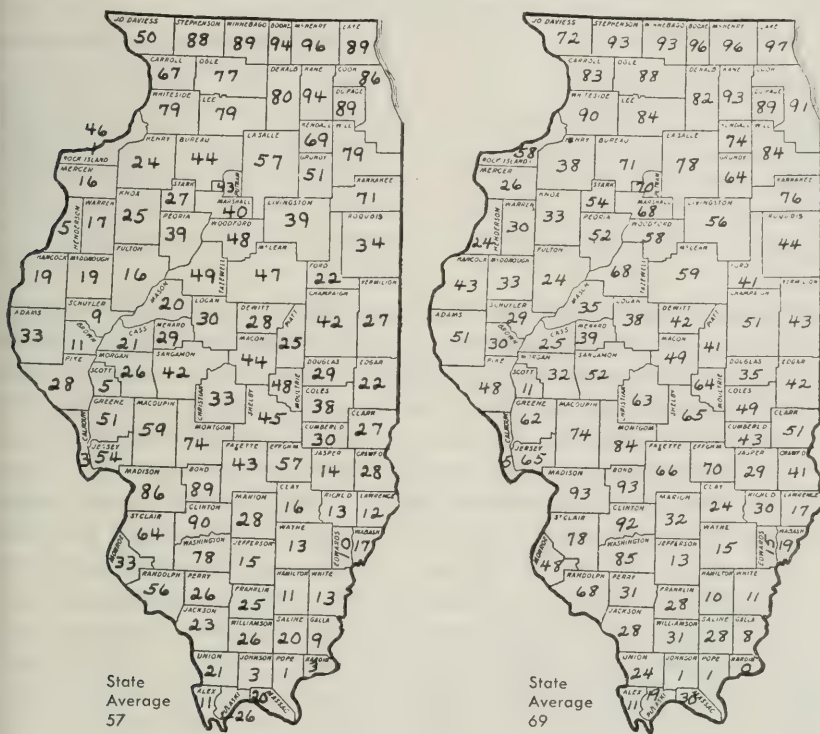


FIG. 4.—PERCENTAGE OF MILK PRODUCTION SOLD AS WHOLE MILK, ILLINOIS COUNTIES, 1919, 1929, 1939, AND 1944

capita and would be dependent upon outside supplies of milk for only short periods of time. Counties producing over 250 gallons of milk per capita represent the best source of milk and milk products for the more densely populated portions of the state. Fluid milk does move from nearly all of these counties to large city markets and in addition large dairy manufacturing plants are located in nearly every one of them. Manufacturing plants are also located in most of the counties which had a per capita production of 150 to 249 gallons. Cream sales were important in the counties with a production of 100 to 149 gallons.

As the population of the state increases, the dairyman's market will grow. Rapid population increases in some areas would be almost certain to stimulate milk production within the milkshed and would probably enlarge the milkshed as well.



Based on U.S. Census data

FIG. 4. — (CONTINUED)

Percentage of Milk Production Sold as Whole Milk

The percentage of milk production sold as milk for the different counties in 1919, 1929, 1939, and 1944 is shown in Figure 4. A definite trend toward greater whole milk marketings has occurred, with the increase in the 1929-1939 decade much greater than in the 1919-1929 decade, and the increase in the five years 1939 to 1944 greater than in either decade.

Very little change in marketing occurred in the specialized milk production areas because most of their output was already being marketed as milk in 1919. Most of the shifts have, therefore, taken place in the counties where dairying is not the major source of farm income (Table 3).

The state increase from 43 percent of milk production sold as whole milk in 1919 to 47 percent in 1929 was small, but the proportion jumped over 20 percentage points in Kendall, Kankakee, Randolph, Clark, DeKalb, and Cumberland counties.

TABLE 2 — THE PERCENTAGE OF MILK PRODUCTION SOLD AS WHOLE MILK, ILLINOIS COUNTIES, 1919, 1929, 1939, AND 1944

Percent	Number of counties in			
	1919	1929	1939	1944
0-16.9	63	46	23	13
17-32.9	12	21	30	22
33-49.9	7	10	20	19
50-66.9	7	10	8	17
67-83.9	4	6	10	16
84-99.9	9	9	11	15
Total counties	102	102	102	102

The tremendous growth of the cheese industry was the principal factor responsible for greater whole milk marketings in 1939 than in 1929, as cheese plants were established throughout the northern two-thirds of the state. Percentage point increases in whole milk marketings exceeded 20 in the following 12 counties: Moultrie, Putnam, Marshall, Grundy, Carroll, Bureau, LaSalle, Shelby, Livingston, Woodford, Stark, and Lee.

Expansion in fluid milk marketings and in cheese, ice cream, evaporated, condensed, and powdered milk production between 1939 and 1944 was the reason for the big increase in whole milk marketings in this period. Prices were such that a considerable amount of diversion from cream to whole milk sales occurred. Thirteen counties experienced percentage point increases of 20 or more: Christian, Putnam, Marshall, Stark, Bureau, Clark, Fayette, Hancock, Jo Daviess, LaSalle, Pike, Schuyler, and Shelby. Many of these counties were among those experiencing large shifts in the previous decade; thus the trend began then was continued. The large number of counties from which less than half of production is marketed as milk indicates that further shifts are possible if selling milk continues to be more profitable than selling cream.

Cream Sales¹

The density of cream sales in 1919, 1929, 1939, and 1944 for Illinois counties is shown in Figure 5. Cream sales increased tremendously between 1919 and 1929, then began a decline between 1929 and 1939 which was continued on through 1944.

In 1919 several counties in southern Illinois centering in Jefferson county ranked highest in density of cream sales.² Poor farm-to-market

¹Includes sales of both sweet and sour cream. Cream sold by the gallon was reported separately for 1919 and 1929 and was converted to butterfat for this analysis on the basis of 21 pounds of butterfat per gallon.

²In 1919, the census figures included whole milk sold on a butterfat basis along with cream sold as butterfat. Jo Daviess and Carroll counties ranked high in density of butterfat sales in 1919 but these sales probably included whole milk marketed to several cheese plants located in them.

roads in this area favored marketing of cream in preference to whole milk, and few whole milk outlets, in fact, were available. Cream sales were lowest in the major fluid milksheds.

1919 to 1929. Cream sales increased in southern Illinois between 1919 and 1929, but not as much as in western, northwestern, and central Illinois. In 1929 the density of cream sales averaged highest in western Illinois, closely followed by several counties in central Illinois and in Jefferson, Richland, Edwards, and Iroquois counties. These counties did not have any large fluid milk markets, nor many other whole milk market outlets.

1929 to 1939. Cream sales in 1939 were 17 percent less than in 1929, according to census data. Nearly all counties shared in this decline, although record sales were listed in 15 counties whose sales were still below the state average. Decreases in cream sales between 1929 and 1939 were greatest in the areas which had relatively high sales in 1929, and were due mainly to a shift to whole milk sales to condenseries and cheese plants. Among the counties with the largest decreases in cream sales were the following: Carroll, Putnam, Jo Daviess, Whiteside, Menard, Moultrie, Hancock, Pike, and Montgomery.

1939 to 1944. As the corollary to the sharp increase in whole milk sales between 1939 and 1944, cream sales dropped drastically. In only seven counties (Jo Daviess, Henry, Mercer, McDonough, Knox, Iroquois, and Fulton) did cream sales exceed 150 pounds of butterfat per 100 acres of land. Jackson, Jefferson, and Union were the leading cream-selling counties in southern Illinois. In 16 counties more cream was sold in 1944 than in 1929, but in only six of these (Cumberland, Effingham, White, Pulaski, Randolph, and Monroe) did annual sales exceed 100 pounds of butterfat per 100 acres of land.

During the period since price controls on dairy products have been removed, there has been some indication of small increases in cream sales resulting from diversion back from whole milk sales. However, any pronounced reversal of the long-time trend toward greater whole milk marketing does not appear likely, because of more complete utilization of the nonfat solids of milk by dairy manufacturing plants.

Conclusions

Several factors affect the development of dairying in any particular area. Most of the year-to-year changes in milk production may be traced to changes in the relationship of prices of milk and butterfat to prices of feed and livestock. While the trend in production over a period of years

1919

1929

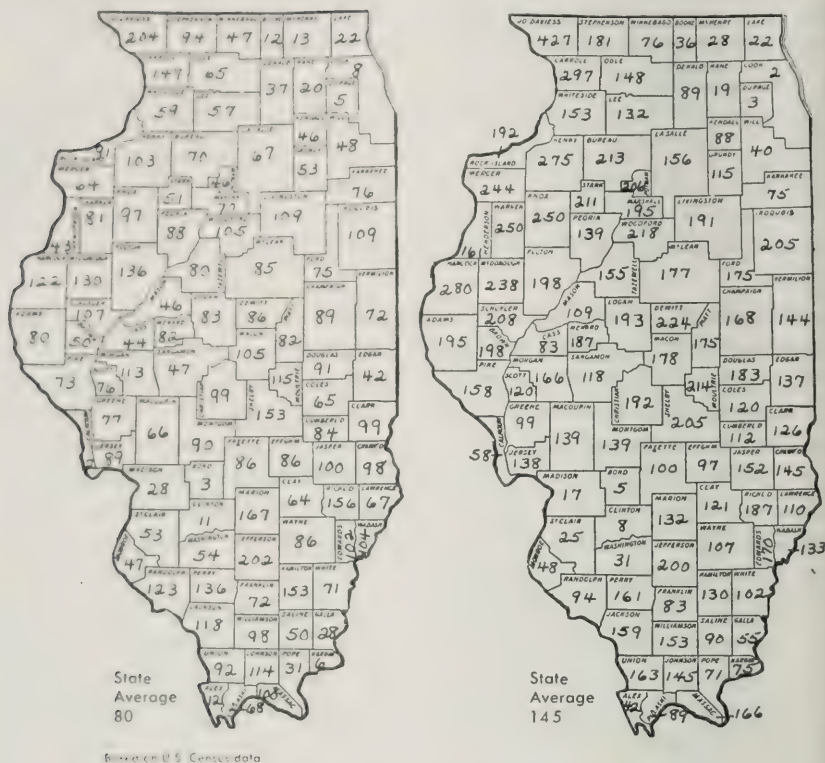


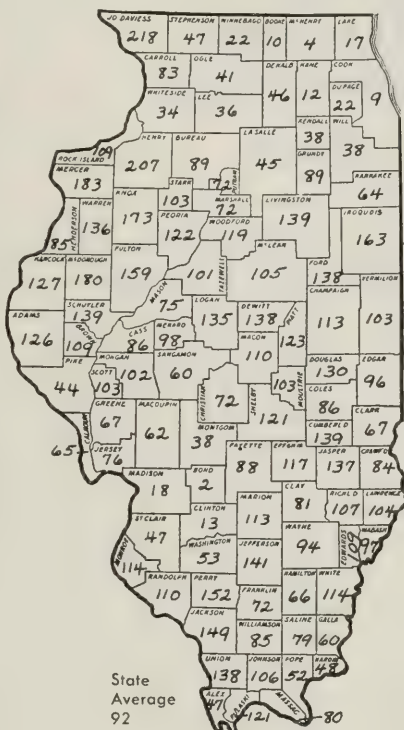
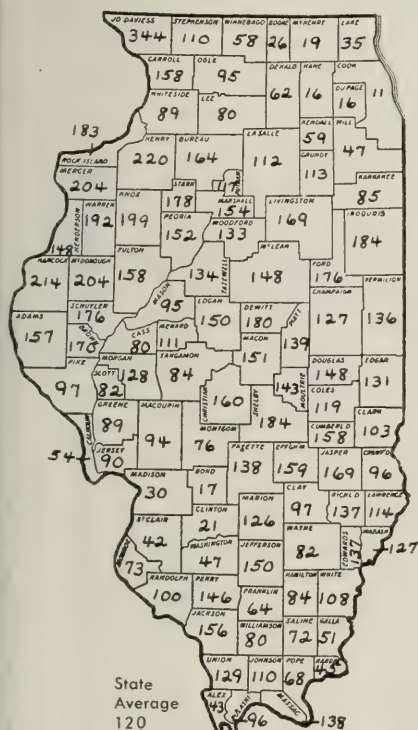
FIG. 5.— POUNDS OF BUTTERFAT SOLD AS CREAM PER 100 ACRES OF LAND AREA, ILLINOIS COUNTIES, 1919, 1929, 1939, AND 1944

is also influenced by these price relationships, the latter result in part from changes in market outlets and in agricultural production practices.

The population growth of the state of Illinois has been one of the major factors supporting the growth of its dairy industry. Milk production increases in the state have been greatest in the counties which ship fluid milk to the large urban consumption centers. Milk producers in counties with sparse population in relation to milk production (Figure 3) must depend largely upon condenseries, cheese factories, or creameries as outlets for their milk. The market for dairy products is also increased by population increases, but Illinois dairymen shipping to manufacturing plants face more direct competition with dairymen in other states and in other countries for that market than do fluid milk shippers for their market.

1939

1944



Based on U.S. Census data

FIG. 5. — (CONTINUED)

Most of the data in this article have been abstracted from the first and third chapters of a thesis submitted by the author to the Graduate School of the University of Illinois in partial fulfillment of the requirements for the degree of Doctor of Philosophy, July, 1946.

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

*Director, Extension Service in
Agriculture and Home Economics*

FREE Cooperative Agricultural Extension
Work Acts of May 8 and June 30, 1914

ILL. 8900, 10-46, 9200
Permit No. 1247

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1931.....	73	65	77	110	84	77	71	95	74	75
1932.....	65	48	52	96	60	57	60	73	51	58
1933.....	66	51	56	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	101	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	90	85	89
1939.....	77	65	81	97	99	107	110	106	100	109
1940.....	78	68	86	98	107	114	116	115	114	125
1941.....	87	82	109	103	142	146	140	138	168	162
1942.....	99	105	140	117	197	200	169	171	245	199
1943.....	103	123	166	127	251	243	191	209	330	239
1944.....	104	124	168	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1945 Aug....	106	127	171	135	274	201	140	233	267	187
Sept.....	105	124	169	136	256	192	141	227	224	169
Oct.....	106	127	169	137	261	346	253	230	223	162
Nov.....	107	131	170	137	282	332	242	232	223	168
Dec.....	107	132	171	138	282	256	186	231	226	164
1946 Jan....	107	130	170	138	281	231	167	229	229	160
Feb.....	108	131	172	139	305	240	173	226	210	152
Mar.....	109	133	175	140	285	246	176	230	233	168
Apr.....	110	135	177	141	276	232	165	233	249	164
May.....	111	138	186	145	299	262	181	234	248	159
June.....	112	140	186	147	286	182	124	234	257	171
July.....	124	157	231	155	353	284	183	236	261	172 ¹¹
Aug.....	128 ¹¹	161 ¹¹	235	159	331	...	...	240	267	176 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Sept. 1945	Current months		
	1935-39	1944	1945		July	August	September
Corn, bu.	\$.66	\$1.07	\$1.07	\$1.08	\$2.05	\$1.77	\$1.73
Oats, bu.	.31	.74	.68	.60	.81	.71	.73
Wheat, bu.	.86	1.54	1.58	1.55	1.97	1.89	1.91
Barley, bu.	.62	1.16	1.09	1.09	1.35	1.43	1.43
Soybeans, bu.	.90	1.91	2.09	2.05	2.30	2.40	2.11
Hogs, cwt.	8.52	13.47	14.25	14.20	17.60	21.40	15.80
Best cattle, cwt.	7.88	11.89	13.12	13.00	18.30	19.20	17.00
Lamb, cwt.	8.36	13.52	13.77	12.60	17.00	16.80	16.00
Milk, cows, band....	58.00	124.50	125.50	128.00	153.00	153.00	156.00
Veal calves, cwt....	8.66	13.32	14.22	13.30	17.70	17.40	16.20
Sheep, cwt....	3.58	5.67	6.38	5.90	8.20	6.50	6.50
Butterfat, lb.	.27	.49	.48	.48	.69	.67	.74
Milk, cwt.	1.68	3.02	2.95	2.95	3.80	3.95	4.00
Eggs, doz....	.19	.31	.35	.32	.31	.32	.30
Chickens, lb.	.15	.24	.25	.26	.30	.27	.30
Wool, lb....	.25	.42	.44	.44	.44	.43	.43
Apples, bu.	1.08	3.11	2.90	2.50	3.60	2.50	2.40
Hay, ton.	9.39	17.65	17.72	15.30	13.50	14.50	15.50
Produce, bu.	.91	1.83	2.06	1.80	1.85	1.70	1.65

¹² For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

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WHAT ABOUT PRODUCTION PLANS FOR 1947?

We are now in a period of price inflation—usual in immediate postwar periods. The present high prices for many farm products evidence this inflation. The ending of price ceilings, which had held down prices of some products, allowed the full effect of the huge supply of money created by wartime finance to be reflected in our farm price level. It is very likely that we are at or past the peak of postwar prices. The record shows that average prices could go only one way when ceilings were released; that was up. Now that market influences operate, prices can go down as well as up. Farmers should not forget this.

Some very high prices like those on fat cattle reflect a temporary scarcity. Circumstances left very few such cattle on farms. This situation will correct itself as soon as time permits the fattening of more cattle. The present high price for soybeans reflects a longer run situation. On a world-wide basis supplies of fats are short. The price of soybean oil reflects this. The value of soybean meal in supplementing corn and other starch feeds was greater than its cost at the ceiling price and so its prices advanced sharply. It will take longer for changes to occur in these basic factors than in the price of fat cattle.

Farm production is now at a high level. As shown below production for sale and home use was one-fifth higher in 1946 than in 1940. However, the increase in output was not uniform among the groups. Production of cotton in 1946 was only 74 percent of 1940 and that of dairy products only 110 percent. This contrasts with 144 percent for food grains and 145 percent for feed crops. Production for sale and home use in the

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

United States in 1946 stood at the following percentages of 1940 production for designated classes of products:

	<i>Percent</i>		<i>Percent</i>
All farm products.....	120	Truck crops.....	140
All livestock products.....	120	Fruits and nuts.....	116
All crops.....	121	Sugar crops.....	104
Food grains.....	144	Meat animals.....	123
Feed crops.....	145	Poultry and eggs.....	132
Oil-bearing crops.....	129	Dairy products.....	110
Cotton and seed.....	74		

There were about 9 million (7 percent) more people in this country to consume these products in the later years. Obviously production per capita was higher. Yet prices were substantially higher. In 1940 farm prices averaged 100 percent of 1910-1914; the parity index stood at 125 percent of 1910-1914; so prices of farm products averaged 80 percent of parity. In October 1946, the peak of farm prices thus far, prices of farm products averaged 273 percent of 1910-1914, 2.7 times the 1940 average; the parity index stood at 207 percent of 1910-1914, 1.66 times the 1940 average; and farm prices averaged 132 percent of parity. When a 20 percent increase in output sells, as indicated by the free market prices of October 15, at 2.73 times the average 1940 price, it is obvious that the level of demand is definitely higher. This measures the present inflationary situation.

This situation can be illustrated by some individual items. In this comparison Illinois farm prices are used.

	<i>1940 average</i>	<i>Price October 15, 1946</i>	<i>Percentage October 1946 was of 1940</i>
Corn.....	\$.56	\$ 1.70	304
Oats.....	.32	.80	250
Wheat.....	.81	1.96	242
Soybeans.....	.82	2.29	279
Apples.....	1.14	2.50	219
Potatoes.....	.83	1.55	187
Hogs.....	5.54	23.00	415
Beef cattle.....	8.84	20.00	226
Lambs.....	8.53	19.50	229
Veal calves.....	9.63	19.30	200
Milk cows.....	65.00	160.00	246
Butterfat.....	.27	.89	330
Milk.....	1.67	4.50	269
Eggs.....	.17	.47	276
Chickens.....	.13	.37	285
Wool.....	.30	.44	147

These are rough comparisons but are used for simplicity. Seasonally eggs and dairy products are high in October. Since October 15 the price of corn has come down to about twice the 1940 average and the price of soybeans has advanced to about 4 times the 1940 price. Early in

November the highest priced farm commodities in relation to 1940 average were hogs, butterfat, and soybeans, all products carrying fats which are now scarce.

It is clear that it is not reduced production which brings high prices but increased money to activate the demand for them.

The price trends in 1947 will depend primarily on how demands are maintained, although prices of individual commodities prices will be influenced by trends in supply. If hog marketings increase in the last quarter of 1947 as the result of a larger 1947 spring pig crop, hog prices will be lower.

Some decline in the high level of employment and business activity is very likely in 1947; also, we will likely export smaller quantities of agricultural products in 1947 than in 1946. World agricultural production is higher and relief feeding will diminish. So it is probable that the demand for and prices of agricultural products will work lower sometime in 1947. Will there be an abrupt collapse? There may be a sharp readjustment downward in prices of some items now at very high levels, but the character of the unsatisfied demands for a great variety of products ranging from housing, automobiles, farm machinery to soap makes a collapse in the level of business activity and the demand for farm products unlikely. Moreover our policy of making foreign loans will provide certain foreign governments with the exchange needed to buy selected farm products here. These considerations, plus the fact that our government with a huge debt will not risk deflationary fiscal and credit policies, make this writer believe that a collapse in farm prices such as occurred in the latter half of 1920, at a similar period after World War I, is unlikely during 1947.

Furthermore, the government is committed to price supports for certain products which will at least retard price declines. At the September 15 parity index (200) which is below the present level, support prices at 90 percent of parity at United States farm prices are:

Corn.....	\$1.15	Hogs.....	\$13.05	Eggs.....	\$0.41 ¹
Wheat.....	1.59	Butterfat.....	.47 ¹	Chickens.....	.205
Soybeans.....	1.73	Milk.....	2.97 ¹	Potatoes.....	1.32

To reach these levels prices of hogs, butterfat, milk, soybeans would have to decline substantially, prices of corn and eggs little, if any.

It must be recognized that it is easier to support the prices of storable crops like corn, wheat, and soybeans by loans than it is to support prices of livestock or perishable livestock products like hogs, butter, and eggs by diversionary operations. So farmers can, in the short run, look to support prices being firmer on grain than on livestock products.

¹ The support prices for butterfat, milk and eggs are seasonal prices and would be lower at certain seasons.

To return to the question: what should farmers produce in 1947? Even though prices may be lower it does not seem that the situation makes major changes in crop production desirable except changes needed to get yield-sustaining or yield-increasing rotations into effect on individual farms. Many Illinois farmers would find it to their long-run advantage to have a smaller proportion of their land in the depleting intertilled crops (corn and soybeans) and a larger proportion in soil-building clover crops than they now have. The Illinois goals for 1947 suggest a seven percent lower acreage of corn because of the probable increase in carryover of corn, resulting from the big 1946 crop and a 17 percent larger acreage in soybeans because of the continued shortage of edible fats and oils. Philippine production of crops from which coconut oil, used in this country largely in soap production, is obtained has come back rapidly in 1946 but we have diverted a substantial share of it to Europe to help with the short supply of food fats there. World production of oil seeds will likely be higher in 1947 than in 1946, but supplies will not likely be excessive by the time the 1947 crop of soybeans is marketed. In the table above it was shown that 1946 production for sale and home use of food grains was 144 percent of 1940 and of feed crops, 145 percent. These increases primarily reflect high acre yields. The acreage in wheat, our principal food crop, was only 7 percent larger in 1946 than in 1940 while acreage in corn, our principal feed crop, was only 3 percent larger.

In connection with livestock and products the increase in milk production has been so modest (10 percent) in 1946 over 1940 compared to population growth (7 percent) that we do not have enough milk to meet demands for butter. Output of milk is retarded by high labor costs. Certainly from the market standpoint reduction in milk output is not warranted in 1947. Meat animal production is up (23 percent) in 1946 over 1940. With smaller quantities of meat going to the armed forces and for export at least 150 pounds of meat will be available per capita in 1947 — more than we have consumed in many years. But high-level incomes mean high demand for meat. The large crop of corn means that more cattle must be fed and more hogs raised in order to consume it. It would seem to be wise to get this corn converted into salable animal products before demands decline. One can anticipate more fat cattle and a larger spring pig crop in 1947. Hogs are not likely to decline in price to a point where they will not repay the present loan price for corn (about \$1.15). Eggs will have to stand on their own now that they do not have meat rationing to support the demand for them. They declined in price contrary to the usual seasonal trend after ceilings were taken off meat. The hatch was drastically reduced last spring. Possibly it should be expanded somewhat in 1947.

While prices of farm products are not likely to maintain the present average in 1947, unless we have a bad crop year, they are not likely to collapse as they did in 1920. Demands for too many things are unsatisfied for such a collapse to be likely. Except for shifts to more rational rotations and increases in the livestock needed to use up the big 1946 corn crop, no large shifts in our 1947 farm plans seem to be warranted.

L. J. NORTON

AMOUNTS OF FEED USED BY DIFFERENT KINDS OF LIVESTOCK ON FARM BUREAU FARM MANAGEMENT SERVICE FARMS

The farm is considered as a single complete unit as regards its organization and operation in farm management studies. There is little or much livestock on most cornbelt farms. The fitting of livestock into the farm business is distinctly a farm management problem. The kind and amount of livestock that may most profitably be kept on any one farm depends on several things, one of the most important of which is the kind and amount of feed that is produced on the farm or may be purchased.

The amounts of different kinds of feed fed to different kinds of livestock on 722 farms of Northern Illinois are shown in the following tables and accompanying discussions. The amounts of feed given are based on records kept by farmers enrolled in the Farm Bureau Farm Management Service.

There are great differences on different farms in the total amounts of feed and the relative amounts of different kinds of feed fed to get the same amount of livestock or livestock product. In this article only the average amounts of feeds reported by different farmers are given. Since farmers enrolled in the Farm Bureau Farm Management Service are usually from among the more progressive farmers of their communities, they use somewhat less feed to produce a given amount of product than the average of all farmers in their areas. The feed records were carefully kept under supervision of fieldmen trained to help get accurate records. Each record used in this discussion is for a three-year period. The large number of records on which the study is based levels off any inaccuracies in the amounts of feed reported by individual farmers.

Prices of feeds used in the study. The prices of homegrown feeds used in figuring the feed charges are shown in Table 1.

The grain was priced at the yearly average Illinois farm prices. Purchased supplements were priced at cost to the farmer. Hay was priced by each farmer according to kind and quality and the customary price in his area.

TABLE 1.—PRICES OF HOME GROWN FEEDS

Item	Northeast Illinois 1942-43-44	Northwest Illinois 1943-44-45	North Central Illinois 1943-44-45	West Central Illinois 1942-43-44	Average of four areas
Corn, per bu.....	\$.94	\$ 1.04	\$ 1.04	\$.94	\$.99
Oats, per bu.....	.62	.69	.69	.62	.66
Wheat, per bu.....	1.33	1.48	1.48	1.33	1.41
Soybeans, per bu.....	1.70	1.86	1.86	1.70	1.78
Barley, per bu.....	.94	1.07	1.07	.94	1.01
Corn Silage, per ton.....	6.25	6.76	6.79	6.15	6.49
Hay, per ton.....	18.00	15.64	16.38	13.25	15.82
Pasture, per pasture day.....	.09	.10	.10	.09	.095

Silage was usually priced by each farmer at January 1st inventory time. The price used was based on the value of the grain in the silage plus the cost of harvesting and storing the silage. The prices of silage used in the feed records are usually low as compared with prices of corn, because the January 1st price of corn is usually below the average yearly price. Not all farmers feed silage; as a result, the amounts of silage given in the following tables are much below the amounts fed on the farms that did feed silage. Silage is usually spoken of as a roughage. Corn silage is really a mixture of grain and roughage. Each 100 pounds

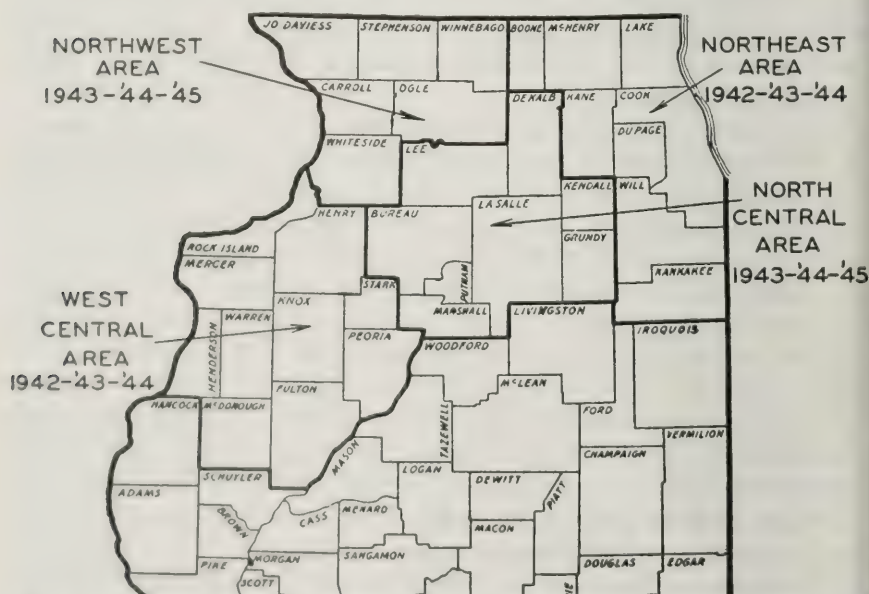


FIG. 1.—MAP OUTLINING THE FOUR AREAS IN WHICH FARMS USED IN THIS STUDY ARE LOCATED AND THE YEARS DURING WHICH THE DATA WERE OBTAINED

of normal corn silage contains about 14 to 18 pounds of air-dry shelled corn and a somewhat similar amount of dry roughage.

Pasture was priced at a uniform rate for the area, the rate depending on the rental rates for pasture and the general price level of other roughages. A pasture day, as used in these studies, is a measure of the amount of pasture that a dairy cow or a beef cow and her unweaned calf will consume when on full feed of pasture. Two heifers, 1000 pounds of feeder cattle, 5 to 7 mature sheep, and 10 to 15 lambs are considered equivalent to one cow when charging for pasture.

Areas of Illinois and Years Included in the Studies. The four areas in which the farms used in the studies are located and the years for which the records were obtained are indicated in Fig. 1. The records for Northeast Illinois are from the *Three-Year Report of the Farm Bureau Farm Management Service on 150 Farms in Northeast Illinois for 1942, 1943, and 1944*. The records for the other areas are from similar three-year reports for their areas for the years indicated on the map.

Hogs ate 449 pounds of grain, 44 pounds of protein and mineral supplements, 3.9 pounds of hay (mostly ground alfalfa) and 1.7 pasture days of pasture for each 100 pounds of gain on the average on 625 farms on which the records were kept. The grain fed amounted to an equivalent of 8 bushels of corn for each 100 pounds of hogs produced or 21 bushels for each 262 pound hog sold.

TABLE 2.—HOGS: THREE-YEAR AVERAGE AMOUNTS OF PORK PRODUCED AND OF FEEDS USED ON FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE THAT PRODUCED 10,000 POUNDS OR MORE OF HOGS PER YEAR

Item	Northeast Illinois 1942-43-44	Northwest Illinois 1943-44-45	North Central Illinois 1943-44-45	West Central Illinois 1942-43-44	Average of four areas
Number of farms.....	108	160	163	194	625*
Number of litters farrowed per farm.....	14	19	34*	36	25.7
Average number of pigs weaned per litter...	6.2	6.1	6.4	6.2	6.2
Total weight of hogs produced, pounds....	24,442	30,836	56,422	57,306	42,251
Average weight produced per litter ^a	1,746	1,623	1,659	1,592	1,644
Average weight of hogs sold.....	262	261	262	264	262
<i>Amount of feed fed per 100 lb. gain:</i>					
Grain, pounds.....	476	454	432	434	449
Protein and mineral feeds, pounds ^b	50	39	45	43	44
Total concentrates, pounds.....	526	493	477	477	493
Hay, pounds.....	3.6	3.0	4.0	5.0	3.9
Pasture, pasture days.....	1.9	1.7	1.5	1.7	1.7
Pounds of protein and mineral feeds per 100 pounds of total concentrates ^b	9.5	8.0	9.4	9.1	9.0
Feed charge per 100 pounds produced ^c	\$10.11	\$10.35	\$9.95	\$8.99	\$9.85

* Total.

^a Feeder pigs bought on a few farms increased the average weight produced per litter a little.

^b This includes mixed feeds bought because of high protein and mineral content as well as tankage, soybean meal, and other high protein feeds.

^c See Table 1 for prices of feeds.

The average amounts of feed varied in different areas. More feed was used on farms of the northeast and northwest areas, than on farms in north central and west central Illinois. In the northeast and northwest areas, 493 pounds and 526 pounds of total concentrate were fed per 100 pounds gain while only 477 pounds were used in both the other areas. As an average of all areas, 9 pounds of protein and mineral supplements were used for each 100 pounds of total concentrates; only 8 pounds were used in the northwest area.

The average weight of 262 pounds per hog sold did not vary much in different areas. The average weight of 1644 pounds of pork produced per litter farrowed was increased slightly because of feeder pigs bought on a few farms. More feeder pigs were bought in the northeast area than in other areas and this accounts for the larger weight per litter in that area.

Feeder cattle. In order to put 100 pounds gain on feeder cattle on Illinois farms, 198 farmers used an average of 733 pounds of grain, 60 pounds of protein supplements and commercial mixed feeds, 245 pounds of hay, 385 pounds of silage, and 8.5 pasture days of pasture. The amounts of different feeds varied greatly from farm to farm due to differences in the sex, age, and quality of cattle, to differences between feeding in the dry lot or on pasture, to differences between silage and non-silage feeding, and to differences in efficiency of different feeders.

About three times as much silage, only about one-half as much hay and pasture, and fifty percent more protein feeds were fed for each 100

TABLE 3.—FEEDER CATTLE: THREE-YEAR AVERAGE AMOUNTS OF LIVE WEIGHT OF FEEDER CATTLE PRODUCED AND OF FEEDS USED ON FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE THAT PRODUCED 5,000 POUNDS OR MORE OF CATTLE PER YEAR

Item	Northeast Illinois 1942-43-44	Northwest Illinois 1943-44-45	North Central Illinois 1943-44-45	West Central Illinois 1942-43-44	Average of four areas
Number of farms	32	45	64	57	198*
Total weight of cattle produced, pounds....	48,074	19,206	29,471	32,066	32,204
Amount of feed per 100 lb. gain:					
Grain, pounds	774	685	740	732	733
Protein and mineral feeds, pounds ^b	81	41	63	54	60
Total concentrates, pounds	855	726	803	786	793
Hay, pounds.....	128	313	287	252	245
Silage, pounds.....	601	353	396	191	385
Pasture, pasture days ^c	5	10	9	10	8.5
Pasture days per animal unit	35	71	60	66	58
Pounds of protein and mineral feeds per 100 pounds of total concentrates ^b	9.4	5.7	7.8	6.9	7.4
Feed charge per 100 pounds produced	\$18.22	\$18.58	\$19.58	\$16.54	\$18.23

* Total.

^a A pasture day for feeder cattle is the amount of pasture eaten in one day per 1000 pounds of cattle on full feed of pasture.

^b This includes commercial mixed feeds as well as soybean meal, linseed meal, cotton seed meal, and other high protein feeds.

^c See Table 1 for prices of feeds.

pounds gain on cattle in northeast Illinois than on cattle in west central Illinois. If the grain in silage is added to that fed as grain, it required about 2 bushels more corn for each 100 pounds gain on cattle in northeast Illinois as compared with those in west central Illinois; however, only one-half as much hay and pasture were used. A study of all of the data obtained from the records shows that there was only a little difference in profitableness in feeding in the two areas during the same years of 1942, 1943, and 1944.

The average feed cost of \$18.23 per 100 pounds gain realized on the 198 farms during the four years of 1942 to 1945 was considerably more than the cattle sold for. However, the spread between the purchase and selling prices made up a considerable part of the difference. If all of the feed had been purchased, and all of the labor hired, as an average of all farms the cattle would have failed to return costs. However, any such loss was counteracted by the fact that they provided productive work for some labor that would otherwise have been idle, furnished a market for much roughage and provided large amounts of manure and of legume hay and pasture which increased the productivity of the farms.

Dairy cattle. The dairy cattle enterprise varies so greatly in the different areas in which the records were obtained that no averages of the four areas are included in Table 4 which reports the data for dairy

TABLE 4.—DAIRY CATTLE: THREE-YEAR AVERAGE AMOUNTS OF MILK AND CATTLE PRODUCED AND OF FEEDS USED ON FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE THAT KEPT FIVE OR MORE DAIRY COWS

Item	Northeast Illinois 1942-43-44	Northwest Illinois 1943-44-45	North Central Illinois 1943-44-45	West Central Illinois 1942-43-44
Number of farms.....	99	113	73	48
Number of cows in herd.....	25.4	19.1	15.3	13.2
Number of cows milked.....	24.0	17.9	14.2	11.7
Total animal units in herd.....	33.7	27.0	21.5	16.8
Percent of cattle units milked.....	71.2	65.7	66.0	69.6
Total pounds of milk produced.....	201,727	141,907	109,060	78,692
Total pounds of beef produced.....	9,187	8,346	6,865	5,960
Pounds of milk per cow milked.....	8,405	7,916	7,690	6,750
Pounds of beef per cow in herd.....	362	442	448	450
<i>Amounts of feed per 100 pounds milk or 10 pounds beef:^a</i>				
Grain, pounds.....	24.5	19.4	25.4	26.4
Protein and mineral feeds, pounds ^b	7.4	4.5	3.7	4.2
Total concentrates, pounds.....	31.9	23.9	29.1	30.6
Hay, pounds.....	38.6	43.2	40.0	42.7
Silage, pounds.....	88.2	45.8	42.5	25.3
Pasture, pasture days.....	1.5	2.0	2.2	2.1
Pasture days per animal unit.....	130	168	181	170
Pounds of protein and mineral feeds per 100 pounds of total concentrates ^b	23.2	18.8	12.8	13.6
Feed charge per 100 pounds milk or 10 pounds beef ^c	\$1.36	\$1.27	\$1.36	\$1.13

^a Approximately the same amount of feed is required to produce 100 pounds of milk and 10 pounds live-weight of cattle in dairy and beef herds.

^b This includes commercial mixed feeds as well as soybean meal, linseed meal, cottonseed meal, bran, gluten feed and other high protein feeds.

^c See Table 1 for prices of feeds.

cattle. Most of the milk in the northeast area goes to the Chicago whole milk market. Some of that in the northwest area is used to supply whole milk to the cities, but a large part goes to cheese factories or condensories. While some milk in the west central area goes to the city markets, much of it is sold as butter fat. Milk in the north central area is used in all of the ways named for the other areas.

Almost all dairy cows in the northeast area are Holsteins, while several breeds, including considerable numbers of Shorthorns, are found in the other areas, especially in the west central and parts of the northwest areas. The number of cows per herd decreases rapidly as one goes from the northeast to the northwest and then to the west central areas.

More of the feed fed to dairy herds goes into veal and beef production than many dairy farmers, as well as others, realize. From 362 pounds of veal and beef in the northeast area to 450 pounds in the west central area was produced for each dairy cow represented in this study. About 60 percent as much beef per cow was produced on the dairy farms as on the farms having beef cow herds. See Tables 4 and 5. Nearly one-fourth as much beef per farm was produced on the dairy farms as on the feeder cattle farms.

It requires about the same amounts of feed nutrients to produce 100 pounds of milk as 10 pounds of live cattle. This relation varies considerably but it is constant enough to form a reasonable basis for calculating the quantities of feed required for both beef and milk production in breeding herds producing both.

When the grain in silage is included, the cows in the northeast area were fed from one-third to one-half more grain and some less roughage per 100 pounds of milk produced than those in the other areas. This accounts for some of the higher milk production per cow than in other areas and for part of the higher feed cost per 100 pounds milk or 10 pounds beef than in the west central area during the same years.

Beef cow herds. Records on 75 farms which had herds of 5 or more beef cows were obtained in three areas. See Table 5. Few such herds are found in northeast Illinois. The herds averaged about 20 cows per herd of which about 2 or 3 were milked to provide milk for home use.

An average of 670 pounds of beef per cow in the north central area to 719 pounds per cow in the northwest area was produced. The herds varied as to the disposal of the calves. Only a few were registered herds from which breeding stock was sold. In some cases, calves dropped in late winter or spring were sold off of grass as fat calves. In some cases calves were "sold" into the feed lot to be fed with purchased feeder cattle. Some calves were kept on roughage for a year or more and sold

TABLE 5. — BEEF COW HERDS: THREE-YEAR AVERAGE AMOUNTS OF LIVE WEIGHT OF CATTLE PRODUCED AND OF FEEDS USED ON FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE THAT KEPT FIVE OR MORE BEEF COWS

Item	Northwest Illinois 1943-44-45	North Central Illinois 1943-44-45	West Central Illinois 1942-43-44	Average of three areas
Number of farms.....	13	19	43	75*
Number of cows in herd.....	20.7	22.6	21.0	21.4
Number of cows milked.....	3.1	1.8	2.4	2.4
Total animal units in herd.....	33.7	35.0	29.5	32.7
Percent of animal units milked.....	9.2	5.1	8.3	7.5
Total pounds of beef produced.....	14,872	15,166	14,268	14,769
Total pounds of milk produced.....	14,192	9,823	13,100	12,372
Pounds of beef per cow in herd.....	719	670	679	689
<i>Amounts of feed per 100 pounds beef or 1000 pounds milk:^a</i>				
Grain, pounds.....	198	331	342	290
Protein and mineral feeds, pounds ^b	14	11	16	14
Total concentrates, pounds.....	212	342	358	304
Hay, pounds.....	550	396	408	451
Silage, pounds.....	478	220	139	279
Pasture, pasture days.....	42	48	39	43
Pasture days per animal unit.....	202	220	205	209
Pounds of protein and mineral feeds per 100 pounds of total concentrates ^b	6.6	3.1	4.5	4.7
Feed charge per 100 pounds beef or 1000 pounds milk ^c	\$13.65	\$15.02	\$12.96	\$13.88

* Total.

^a Approximately the same total amounts of feed are required to produce 100 pounds beef and 1000 pounds milk in dairy and beef herds.

^b This includes commercial mixed feeds as well as such feeds as soybean meal, linseed oil meal, and cottonseed meal.

^c See Table 1 for prices of feeds.

as feeders or were fed on the farms. Probably a half of all calves were fed from weaning time until 12 to 18 months of age and sold as fat cattle. These differences in the disposal of the calves probably account for many of the differences in feed requirements in different areas.

Most of the grain and much of the silage fed to beef cow herds goes to fatten the calves. Calves in the northwest area were fed out to heavier weights with much less grain but with more hay and silage than calves in the other areas. However, the complete records show that the calves in the northwest area sold for much less per 100 pounds, which would indicate that they were not fed to as good a finish.

Native flocks of sheep. Records on 94 native flocks of sheep were obtained in three areas; relatively few sheep are kept in northeast Illinois.

Each 100 pounds of mutton and wool produced in the three areas required the feeding of an average of 198 pounds of grain, 7 pounds of protein supplement, 486 pounds of hay, 63 pounds of silage, (not many flocks received silage) and 59 pasture days of pasture. Less than one-half as much grain per 100 pounds gain was fed in the northwest area as was fed in the north central and west central areas; however, much more hay and pasture were used. The use of more hay and pasture and less grain to put on gains and produce milk was noted in the northwest

TABLE 6.—NATIVE FLOCKS OF SHEEP: THREE-YEAR AVERAGE AMOUNTS OF LIVE WEIGHT OF SHEEP PRODUCED AND OF FEEDS USED ON FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE THAT PRODUCED 1000 POUNDS OR MORE PER YEAR

Item	Northwest Illinois 1943-44-45	North Central Illinois 1943-44-45	West Central Illinois 1942-43-44	Average of three areas
Number of farms.....	30	27	37	94*
Pounds of mutton and wool produced.....	2,022	2,712	2,676	2,470
<i>Amounts of feed per 100 pounds produced:</i>				
Grain, pounds.....	109	242	243	198
Protein and mineral feeds, pounds ^a	7	7	8	7
Total concentrates.....	116	249	251	205
Hay, pounds.....	479	367	611	486
Silage, pounds.....	91	40	59	63
Pasture, pasture days.....	62	58	57	59
Pasture days per animal unit.....	243	240	...	241 ^b
Pounds of protein and mineral feeds per 100 pounds of total concentrates ^a	6.1	2.8	3.0	4.0
Feed charge per 100 pounds produced ^c	\$12.32	\$13.84	\$13.27	\$13.14

* Total.

^a This includes commercial mixed feeds as well as such feeds as soybean meal, linseed oil meal, and cottonseed meal.

^b Average of two areas only.

^c See Table 1 for prices of feeds.

area than in other areas, also, in the cases of feeder cattle, dairy cattle, and beef cow herds. See Tables 3, 4, and 5.

Poultry. Records were obtained on 518 flocks of 50 or more hens per flock; the average flock contained 164 hens during the average of 12 months. The hens laid an average of 140 eggs per hen and 68 percent of the income was from eggs.

For each hen, an average of 102 pounds of grain and 40 pounds of supplement and commercial mixed feeds, a total of 142 pounds of feed, were fed. The least feed per hen, 139 pounds, was fed in the northeast

TABLE 7.—POULTRY: THREE-YEAR AVERAGE NUMBERS OF HENS KEPT AND OF EGGS PRODUCED AND AMOUNTS OF FEEDS USED ON FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE THAT KEPT FIFTY OR MORE HENS

Item	Northeast Illinois 1942-43-44	Northwest Illinois 1943-44-45	North Central Illinois 1943-44-45	West Central Illinois 1942-43-44	Average of four areas
Number of farms.....	118	142	133	125	518*
Number of hens per farm.....	184	159	162	151	164
Number of eggs produced per hen.....	131	142	144	141	140
Percent of income from eggs sold.....	71	69	68	65	68
<i>Amounts of feed per hen:</i>					
Grain, pounds.....	96	102	106	102	102
Protein and mixed feeds, pounds ^a	43	39	41	39	40
Total concentrates, pounds.....	139	141	147	141	142
Feed charge per hen ^b	\$3.09	\$3.47	\$3.59	\$3.14	\$3.32

* Total.

^a This includes commercial mixed feeds and unmixed high protein feeds.

^b See Table 1 for prices of feeds.

area where the fewest eggs per hen, 131, were produced. The most feed per hen, 147 pounds was fed in the north central area where the most eggs per hen, 144, were produced. Approximately one pound of feed was used per egg produced.

M. L. MOSHER

PROCEDURES ORDINARILY INVOLVED IN BUYING A FARM

Assuming that an adequate appraisal of the farm has been made and that a farm can be purchased for what it is worth, what steps need to be taken to effect a satisfactory change of ownership? This is a question which every buyer should ask himself. A list of some of the appropriate answers follows.

1. Find a credit agency that will finance the purchase of the farm under suitable terms. A financing plan should provide for an amortized method of payment over a fairly long term of years at not more than the going interest rate. Twenty years may be considered as a reasonable period for a loan. However, many sound loans are made for shorter periods. Money has been available in Illinois during the past few years for around 4 percent. The borrower should get as long a term and as low an interest rate as he can and insist on liberal repayment privileges.

2. A contract should be drawn up with the seller and signed by seller and buyer. Among other things, this contract should:

- (a) Specify the amount of the purchase price and how and when it is to be paid.

- (b) Specify that insurance policies in force on the property shall be transferred to the buyer and that any payment for losses occurring following the date of the contract shall be payable as the interests of the parties appear.

- (c) Designate whether crops not yet harvested or divided, agricultural conservation payments not yet paid, or cash rent not yet due are to go to the buyer, or if they are to be handled differently. Obviously these provisions will depend somewhat upon the time of year the farm is sold.

- (d) Designate by whom current taxes, assessments, and insurance premiums shall be paid. These may be apportioned between the buyer and seller, depending upon the amount of the current term for each item that has elapsed at the time of the sale date or of taking possession or title. Sometimes the buyer simply agrees to pay installments that become due after the date of purchase. As a general rule taxes occurring during the current year are paid by the one who gets the crops.

- (e) Provide that the seller shall pay all past assessments, taxes, or obligations of any kind against the land, prior to final settlement.

(f) Require the seller to provide an abstract containing all entries up to the present transaction and showing a clear and merchantable title.

(g) Provide for the delivery of a warranty deed free of exceptions or conditions, at the time final settlement is made with the seller.

(h) Provide for any special things which the seller agrees to do before delivery of possession, such as repairing a building or well.

3. Reach an agreement with the lending agency specifying:

(a) The amount borrowed.

(b) The interest rate.

(c) The period for repayment.

(d) The number, amount, and date of annual installments.

(e) Repayment privileges, particularly with respect to the amount of principal that can be repaid in any one year.

(f) Appraisal fees or other loan service charges.

(g) Any special provisions in case of default in repayment of the loan.

4. The warranty deed should:

(a) Be executed by the seller and placed in the hands of an escrow agent. The lending agency frequently acts as escrow agent.

(b) Specify in whom the title is to vest: for example, "John Jones" or "John Jones and Nellie Jones, his wife, as joint tenants and not as tenants in common."

(c) Be signed and sealed by the seller and his or her spouse, contain a properly executed waiver of dower and homestead rights, and be acknowledged before an authorized person.

5. The abstract should be examined by a competent attorney.

6. Any defects in the title should be cleared by the seller before making a final settlement.

7. When the deed has been received, it must be recorded.

8. When the deed is recorded, a mortgage is issued to the lending agency to secure the notes given for the amount advanced to pay for the farm. The mortgage and notes should be in accord with the original agreement relative to the terms of the loan. Frequently a trust deed is used in place of a mortgage.

9. Other points to consider:

(a) Who is now occupying the farm you are buying? If a tenant, what are his rights? Does he have a written lease? When and how can his term be terminated and you take possession? What are his rights in crops and improvements now on the land? (He may own hog houses, hen houses, brooders, temporary fencing — you should find out.)

(b) If you buy your farm through a real estate firm and the firm offers to find a loan for you, or get your title examined, or draw up your contract with the seller, or place your insurance for you, be sure you are getting competent service in all these things; that you are dealing with companies or individuals as reliable as you could pick for yourself; and that costs are not out of line with those you could get from companies or individuals selected by you to perform these services.

(c) Be certain there are no valid liens, judgments, or other obligations not appearing in the abstract; that any mineral leases or deeds which may have been executed have been released, that there are no transcripts of records of proceedings in a federal court affecting the property, which have not been examined.

(d) Find out if anyone has an easement to the use of any of the land as a roadway or for other purposes and if there are any existing controversies over such easements.

(e) What has been the customary division of responsibility between the owner and adjoining owner with respect to fences?

10. When final payment has been made on the loan a release of the mortgage or trust deed must be executed and recorded.

H. W. HANNAH

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Section in
Agriculture and Home Economics

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1931	73	65	77	110	84	77	71	95	74	75
1932	65	48	52	96	60	57	60	73	51	58
1933	66	51	56	94	62	68	75	70	54	69
1934	75	65	76	100	73	73	74	80	70	75
1935	80	79	103	101	90	86	85	86	80	87
1936	81	81	107	100	104	109	110	101	93	103
1937	86	86	120	104	108	116	112	107	111	113
1938	79	69	87	98	99	107	109	90	85	89
1939	77	65	81	97	99	107	110	106	100	109
1940	78	68	86	98	107	114	116	115	114	125
1941	87	82	109	103	142	146	140	138	168	162
1942	99	105	140	117	197	200	169	171	245	199
1943	103	123	166	127	251	243	191	209	330	239
1944	104	124	168	132	265	249	189	231	346	236
1945	106	128	171	136	283	246	180	236	288	203
1945 Oct.	106	127	169	137	261	346	253	230	223	162
Nov.	107	131	170	137	282	332	242	232	223	168
Dec.	107	132	171	138	282	256	186	231	226	164
1946 Jan.	107	130	170	138	281	231	167	229	229	160
Feb.	108	131	172	139	305	240	173	226	210	152
Mar.	109	133	175	140	285	246	176	230	233	168
Apr.	110	135	177	141	276	232	165	233	249	164
May	111	138	186	145	299	262	181	234	248	159
June	113	140	186	147	286	182	124	234	257	171
July	125	157	231	155	353	284	183	236	261	173
Aug.	129	161	235	159	329	245	154	240	278	179
Sept.	124 ¹¹	154 ¹¹	216	156	264 ¹¹	...	...	243	...	182
Oct.	131 ¹¹	163 ¹¹	254 ¹¹	162 ¹¹	...	...	...	242	...	...

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Current months			
	1935-39	1944	1945	Nov. 1945	September	Oct.	Nov.
Cattle, live	\$.66	\$1.07	\$1.07	\$1.06	\$1.73	\$1.70	\$1.20
Hogs, live	.31	.74	.68	.71	.73	.80	.76
Wool, raw	.86	1.54	1.58	1.64	1.91	1.96	1.98
Sheep, live	.62	1.16	1.09	1.13	1.43	1.45	1.30
Hay, timothy, ton	.90	1.91	2.09	2.10	2.11	2.29	3.13
Flour, white	8.52	13.47	14.25	14.30	15.80	23.00	23.30
Wheat, white, bush	7.88	11.89	13.12	12.00	17.00	20.00	19.50
Lard, white	8.46	13.52	13.77	13.20	16.00	19.50	20.80
Milk, whole, 100 lbs.	\$8.00	124.50	125.50	128.00	156.00	160.00	160.00
Butter, 1 lb.	8.66	13.32	14.22	14.10	16.20	19.30	21.00
Eggs, fresh, doz.	3.88	5.67	6.38	5.80	6.50	8.70	6.90
Veal, live	.27	.49	.48	.48	.74	.89	.81
Milk, cash	1.68	3.02	2.95	3.05	4.00	4.90	5.20
Beans, dry	.19	.31	.35	.42	.38	.47	.38
Wheat, No. 2	.15	.24	.25	.22	.30	.37	.27
Wheat, No. 3	.25	.42	.44	.46	.43	.44	.43
Produce, live	1.08	3.11	2.99	3.50	2.40	2.50	2.50
Produce, dry	9.89	17.65	17.72	16.00	15.50	16.00	18.00
Produce, live	.91	1.83	2.06	1.55	1.65	1.55	1.60

¹²⁻¹³ For sources of data in tables see previous page.

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TRENDS IN THE COST OF PRODUCING CORN AND SOYBEANS

Farmers in central Illinois have been keeping cost records on their crops in cooperation with the University of Illinois continuously for the past 34 years. The University took no part in the management or in the operation of these farms. These cooperators are a group of typical Illinois farmers.

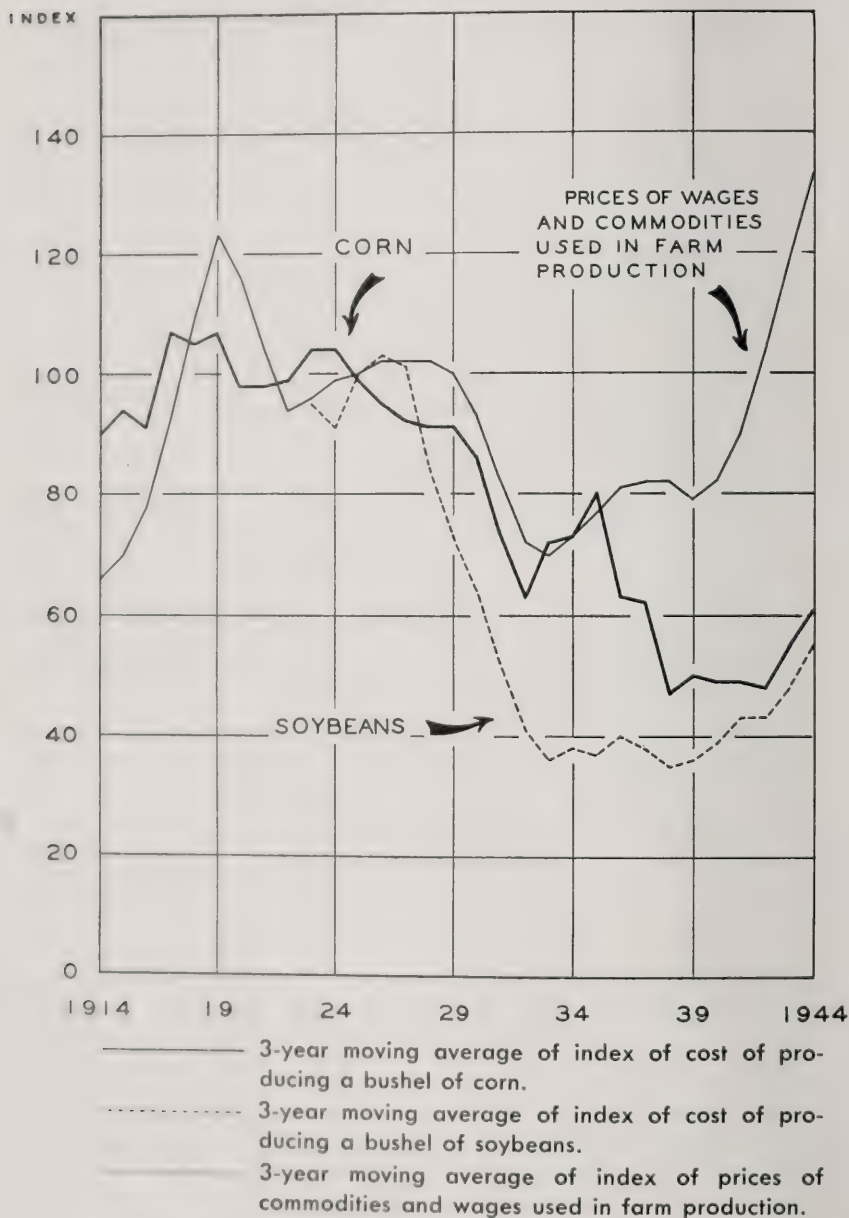
Their cost records show that today farmers in the cash-grain area of Illinois are producing a bushel of corn with six minutes of man labor where 34 years ago 32 minutes were required. Oats are being produced with five minutes of labor per bushel compared with 17 minutes 34 years ago. A bushel of soybeans is produced with ten minutes of man labor, whereas it required 50 minutes in the early 1920's when soybeans were becoming established on Illinois farms.

This does not mean that the actual cost of producing an acre of field corn is lower in Illinois at the present time than it was 34 years ago, but the improvement in yield of corn per acre during the 34 years results in a bushel of corn being produced and harvested with only two-thirds as much cost and only one-fifth as much labor as it did at the beginning of this period. The cost per acre, however, is about \$4 more than it was 34 years ago.

With the soybean crop we have a different picture. It costs about \$3 an acre less to produce an acre of soybeans under present conditions than it did in the early 1920's. This is due mainly to changes in methods of growing and harvesting the crop. It costs only one-half as much to pro-

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

FIG. 1.—INDEX OF THE COST OF PRODUCING A BUSHEL OF CORN AND SOYBEANS,
AND OF THE PRICES OF COMMODITIES AND WAGES USED IN FARM PRODUCTION
(3-year moving averages, 1913-1945)
1923-1927 = 100



duce a bushel of beans today and it requires only one-fifth as much time to produce a bushel as in the early 1920's.

The reduction in man-labor requirements in crop production has been made possible, of course, by the substitution of mechanical power and large-sized power-drawn machinery for horse-drawn machinery. It also has been materially aided by a marked increase in acre yields in the face of declining fertility of the soil. This increase in yield is the result of improvement of varieties of crops by means of plant breeding, better control of weeds, insects, and disease through improved knowledge and techniques, better tillage and more efficient harvesting obtained with modern equipment and more adequate power units.

The general adoption of mechanical power and large-sized modern equipment, while making it possible to produce crops with much less man labor, caused a change in the character of farm expenses. In 1913-1915 farm power was largely furnished by horses, the "fuel" for the power — the horse feed — was raised on the farm; and, for the most part, the replacement stock was raised. Now farmers have to buy new tractors and tractor-drawn machines to replace worn-out machines, and they have to pay cash for fuel and oil needed in tractor operation.

Tractors, machinery, fuel, oil, and the reserve for depreciation on machinery now make up 29 percent of the total cost of producing soybeans and 33 percent of the total cost of producing corn. During 1913-1915 the machinery cost in producing an acre of corn was only six percent of the total cost.

Crop cost studies indicate that today 68 percent of the cost of producing corn is a direct cash expense. In 1913-1915, only 29 percent of the corn cost was a direct cash outlay to the grower. At present 56 percent of the cost of producing soybeans requires a direct cash outlay on the part of the grower; whereas, in the early 1920's when soybeans were just becoming established in Illinois, only 38 percent of the cost of producing soybeans was a direct cash outlay.

Including depreciation on machinery in crop production the cash requirement in production equals 80 percent of the cost of producing corn compared with 35 percent in 1913-1915.

In producing soybeans under present conditions direct cash outlay on the part of the grower plus the cash reserve for depreciation on machinery total 65 percent of all costs compared with 50 percent in the early 1920's.

Changes in prices of goods farmers need to buy to produce crops bear little relation to changes in the prices of farm products. In mechanized farming, such as we have today, the farmer may find himself at a serious disadvantage in times when prices of materials he uses in production are high in comparison with prices of farm products.

It is encouraging to note from cost records that crop costs have not risen as fast as the price of commodities the farmer needs to buy to produce crops. The accompanying chart shows the movement of prices paid by farmers for goods and wages used in farm production in relation to the cost of producing a bushel of corn and soybeans.

In recent years the index of corn production costs dropped to as low as 48 percent of the 1923-1927 level, then began rising and today is up to 60 percent of the 1923-1927 level. But the index of prices of goods and wages used in agricultural production rose to 133 percent of 1923-1927 in the most recent years, while corn costs rose to only 60 percent.

Soybeans is a newer crop than corn and improvements in techniques of production have taken place and improved varieties have been developed. These changes have had more effect on yields and bushel costs of soybeans than took place on an old crop like corn until recently.

Increased yields and improved methods of production reduced the soybean bushel cost in 1938 to 35 percent of the 1923-1927 costs. The bushel costs of soybeans in recent years, however, are going up faster than corn bushel costs.

Our land is being cropped too heavily to corn and soybeans. Soybean yields are declining on the average Illinois farm and costs are increasing and will continue to increase because more manure and fertilizer are needed to keep yields at a high level.

In the next few years the lowering of costs in the production of crops will be uppermost in the minds of most farmers. It is well to build up soils now so that yields can be maintained when market prices may not be as favorable as they now are.

R. H. WILCOX

WHAT'S AHEAD FOR INCOME OF ILLINOIS FARM FAMILIES?

Incomes of farm families can be measured in three ways: (1) money, (2) goods and services, (3) intangible values of living in sound rural homes and communities.

Money incomes of Illinois farm families have been high during the war. While they may be lower in 1947 than in 1946, they will continue at a high peacetime level.

Incomes in goods and services depend on availability of desired items. Scarcities of many items during and since the war have prevented many farm families from realizing their desires. Many goods and services will be more freely available in 1947 but others will continue to be scarce.

Intangible incomes of home and community life depend largely on how

¹ Portion of a talk given at Farm and Home Week, University of Illinois, January 28, 1947.

well these are developed by individuals and communities. The possibilities of these in 1947 and future years depend on what people do to achieve them rather than on the prospects for cash income.

Money incomes of farm families depend on: (1) the capacity of farm families to take available resources — land, capital, labor and management ability — and combine them into profitable farm businesses; (2) the capital available to the family to develop a business of adequate size; and (3) the general business situation and price level.

The first item, capacity to organize and carry on a successful farm business, is an individual matter. Some families can and some cannot. The principles lie in the field of farm management, and I will not discuss them. The question of capital also varies greatly. Some farm families inherit it; some have capacity to earn and save it. At this time capital is not the limiting factor for many families that it has been in the past. High wartime earnings have built up the capital resources of many farm families, giving them an opportunity to do things in the way of building up their farm business or in developing better farm homes that they could only dream about five and ten years ago. How intelligently this capital is used will have much to do with the economic future of these families. From the business standpoint this matter of intelligent use of wartime savings is closely tied in with the question of the prospects for the demands for and prices of farm products. So we had better turn now to the prospects for farm income.

The money income of a farm depends on three things: (1) the volume of products, grain, livestock, milk, etc., available for sale; (2) the prices received for these products; (3) the costs of farm operation and maintenance.

Farm incomes have been high during the war years because all these factors were favorable. Physical volume of product was high. Good weather, hard and sustained labor, intensive operation (more land in high return crops like corn and soybeans as well as more livestock), and a combination of new techniques (hybrid seed, better varieties of other crops, more fertilizer, better mechanical equipment), all contributed to sales of farm products about 20 percent higher in 1946 than in 1940. Except for the uncertain weather item, these factors will operate to maintain high output of farm products as long as it pays. I do not think 1947 is the year to cut back on agricultural output. The world is still short of basic foodstuffs. For some time the market has been afraid of the future but, when the future has become the present, it has found the demand still strong.

So far as the demand for farm products in 1947, it depends on the general level of prices in world markets and a continued high level of income in this country. The aggregate incomes of our people are close to

two and a fourth times as high as they were before the war and this creates a tremendous demand for all sorts of goods. So far as foodstuffs are concerned the most important change was the upgrading of incomes. Many families whose breadwinners before the war were unemployed or were earning rather low incomes now have jobs or better incomes. This situation applies to millions of farm families as well as even larger numbers of other families. This increased income has led them to up grade their demands for food. The consumption of milk has been phenomenal. The demand for meat has been such as to take all available meat at high prices. As long as this situation persists, we shall have strong demands for food in the home markets.

World-wide shortages of food have also caused us to export vastly more farm products than before the war. These exports still continue and one way or another the hungry peoples of the world will find ways to get the basic foods they must have in order to sustain life. While the war has made this country rich, it has made people in many other countries poor. So the demands for our foodstuffs from overseas will be for the basic foods which poor people consume — grains and fats — wheat, rice, corn, sugar, lard, and other food fats. These two factors — high incomes here and pressing needs abroad — explain the present strong markets for agricultural products.

Most people anticipate a decline in demand during the coming year. Prices are high; production is at a high level. This is a war generated situation. We have always had lower prices and depression after wars. So we must have one now. That is the way the reasoning runs. I personally expect considerable readjustment in prices during the coming years, but I do not look for the collapse which came in the fall of 1920 when prices dropped over 40 percent between 1919 and 1921. Meat animals — cattle and hogs — are now high in price and with the increased production which will follow from the conversion of our large corn crop into meat will certainly be lower. Butter and other products which classify as fats are high in price and will probably be lower. The prices of grain will be influenced by the size of the 1947 harvests. Prices of farm products may average lower a year from now by perhaps 20 to 25 percent. In my opinion, they will not break wide open and collapse as in 1920. However, price changes will likely lower farm income in the last half of 1947 as compared to 1946.

It is well to remember that prices of farm products have always declined from high wartime levels. It is safest to assume that they will do so again. Some new elements in the picture, however, may moderate such a decline. In the strictly short run, there is the huge purchasing power created by the methods we used to finance the war, i.e., large scale sales of bonds to banks which created new money. In the longer run, there is

our huge national debt. No government will risk strictly deflationary policies when it has the responsibility for maintaining the solvency of a government with as large a debt as ours has. In spite of these qualifications, I personally expect somewhat lower farm prices. But nothing like the disastrously low prices of the early 1930's, which bankrupted many farm families, is in sight for the near and intermediate future.

You have all noted that most merchants have cut prices on many types of goods. Someone has said: Prices were cut on furs, jewelry, and junk. Merchants obviously want to reduce inventories of certain classes of goods. This indicates they anticipate price declines or slow sales in certain lines of merchandise. In fact, in some lines such as raw furs substantial reductions have occurred in prices.

The experts say that manufacturers will first catch up with the market demands in soft goods, i.e., in clothing and other textile products. Based on historical trends, this is likely true. The cycles of production have always been short in these lines. Supplies of these various soft goods will likely become more abundant and easy to buy during the coming year.

Costs lag behind prices of primary products, i.e., behind prices of farm products. So costs rose less rapidly than prices during the war. But costs also fall less rapidly. So costs will hold up after farm prices fall. I would expect costs to be higher in 1947 and to lag behind prices when they begin to fall. Costs of producing certain items farmers buy have been raised by higher wages. The trend of wages is up. Real estate taxes will likely rise as school teachers' salaries and other local costs rise in adjustment to higher price level. So far as farm family costs represent farm products, feed, seed and food, they will decline with prices of farm products.

Costs will be higher in 1947 than in 1946 for another reason — the greater availability of certain goods. Costs were held down in some cases simply because needed items were not available. Some of these will be more freely available in 1947, and so spendings for them will increase.

On balance with somewhat lower prices and somewhat higher costs, I expect farm incomes to be somewhat lower, particularly in the last half of 1947 than in 1946. However, they will still be at a high level judged by peacetime standards.

L. J. NORTON

PROPOSED LEGISLATION RELATING TO SCHOOL REORGANIZATION

Ninety-three of Illinois' 102 counties have county school survey committees working to see what can be done to improve the organization of school districts in their counties. House Bill No. 406, enacted by the last session of the Illinois State Legislature, charged these committees with this very

important duty: to study the school districts and their organization for the purpose of recommending desirable reorganization that will do three things—

(1) Afford better educational opportunities for the *pupils and inhabitants* of the county,

(2) Provide more efficient and economical *administration* of public schools, and

(3) Insure a *more equitable distributing* of public school revenues.

It didn't take long, however, for many county school survey committees to discover that our Illinois school laws are inadequate. It is difficult to put recommendations into practice which many of the committees feel are needed if they are to meet the charge laid down to them in the law.

Remedies for the present situation. At the Governor's Conference on Rural Education held in Springfield in January, 1946, several deficiencies in the law were pointed out by a resolutions committee. They pointed out, also, that survey committees were encountering many difficulties with which their recommendations would be faced under our present laws. The Illinois Rural Education Committee, which asked Governor Green to call the conference, felt impelled to do something about the matter; so, with the approval of the State Advisory Commission on School Reorganization, the committee called 15 meetings in various parts of the state, in the fall of 1946, to discuss needed legislation. County Survey Committee members and others were asked to attend; 460 people from 88 counties did attend. This, then, is a brief report on what they felt was needed in legislation for school reorganization:

Legislation needed to clarify present survey law. Probably the most important need expressed by people from almost every county in the state was for clarification of the present survey law: by amendment, to give a simple legal process intelligible to the people for acting upon the recommendations of the county survey committees. If a county committee wishes to recommend a county unit or several larger community units providing for all grades of work, from grades one through 12—and at least 15 county committees are planning to make such recommendations—it would find the present law so complicated that it would be almost impossible to get approval of the recommendations by the people. Because of this, some of the committees are discouraged and frustrated; they feel there is no use in making recommendations if there is little chance that they will be approved by the people. Therefore, they want a law specifically *permitting* a county or larger community administrative unit.

Legislation permitting extension of time for making reports. Most committees have been working for only a year. Quite a number have just begun their work. Some believe there is little use to do much until they

see what the Legislature, now in session, will do. So most committees want an extension of time, at least from June 1, 1947, to September 1, 1947, to make their tentative reports; and they want about six months to a year more to make the final report. Experience that a few committees have had with community meetings has led them to believe that many rural people and some town people are not yet ready to accept the kinds of recommendations the committees believe will do most to improve educational conditions in the county. A number of committees believe, for example, that larger administrative reorganization is the most desirable plan. But most rural people do not yet realize that such a plan will preserve many of our best country schools; they do not realize that reorganization of elementary districts separate from high schools means that in 9 out of 10 cases the children will go to town schools, the very thing that is not wanted by some farm people. The belief of the committees, therefore, is that if time were given to acquaint the general public with the true difference between administrative and attendance units—that one administrative unit could have as many attendance units, both elementary and high school, as are needed to take care of the children—then there would be quite general acceptance of the plan. But to clear this matter up will take time, more time than is available under the present law for making reports.

Legislation encouraging reorganization. It didn't take long for survey committees, after they started working, to discover that the present laws actually discourage reorganization. This is especially true in cases in which the districts have few children in attendance and receive considerable special state aid. In Macoupin County, for example, where the committee strongly favors five larger administrative districts, many country school districts having fewer than 10 children in attendance also have more money to run their school than they would have if they were consolidated with one or more adjacent districts. If the districts around Carlinville were consolidated, for example, there would be a loss of \$18,432 in state aid. For this county as a whole the loss would be \$125,547.

There was a widespread approval, therefore, for an increase in state aid on an equalization basis, that is, on the basis of need for help, to relieve the burden on real estate, particularly farm property. There is no state real estate tax at present, so the more state aid given for the support of schools the greater the chance to provide better schools without an undue burden on real estate. A number of county representatives approved state aid to insure \$150 per elementary and \$150 per high school pupil in districts providing a satisfactory system of organization. By satisfactory, they meant at least 15 pupils per teacher. There was considerable sentiment for raising the minimum teacher pay from \$1,200 to \$1,800, in order to

encourage prospective teachers to train for rural schools. Reports show that more than half of the present one-room schools in the state are taught by teachers employed under emergency certificates, which means that they cannot qualify for a standard teacher's certificate.

Legislation assuring rural representation on new school boards. One of the great fears farmers have of reorganization is that they will lose control of their schools. There was almost universal demand, therefore, for legislation which would assure rural areas of representation on new town-country school boards. It was pointed out that the precedent already had been set for area representation in that not more than one school trustee can be elected from any one school district under the present state law. The Pulaski County committee, which has already filed its tentative report, feels that the law could specify that not more than three out of seven of the larger district school board members should come from one township or municipality. The Pulaski County committee recommended a county administrative unit for grades one through 12, so such a plan would be needed to protect the country areas in the county.

Legislation for aid in transportation. Another real handicap to reorganization is the problem of getting children to the larger schools. In many cases this will require both some means of transportation and the building of all-weather roads. There was widespread demand, therefore, for increased state aid for transportation, increasing the present figure from \$20 to not more than \$40 per child per year transported, not to exceed three-fourths of the total cost of transportation. There was strong sentiment, also, for the use of small busses so that small children need not be on the road more than a half hour, and so that the bus can come up to the door to pick up the children.

The present system of township or precinct road organization is in need of change. Widespread support was in evidence for state laws making possible setting up county road districts, pooling all the funds to buy adequate equipment and to hire competent, full-time persons to build and maintain the roads. If the road problem could be solved, many country people would welcome the coming of school reorganization.

State aid for building purposes. School district reorganization will carry with it the need for construction of many new buildings. Following the lead of New York state, which provides from state funds for one-fourth of the building costs for newly reorganized districts, a number of county committees believe that similar aid should be provided in Illinois. They are hoping that the new buildings will not only provide modern educational plants for the children and youth, but also serve as much-needed neighborhood and community meeting centers.

Miscellaneous proposals. Many other proposals for change in the

law were made. A number of groups felt that legislation was needed to discourage small schools by refusing state aid to those with fewer than 12 or 15 children in average daily attendance. Also, there was general approval for some sort of provision to prohibit the operation of small high schools. It was considered a disgrace to permit a high school such as now operates with five pupils and three teachers to continue. Such minima as 10 per grade, 20 per grade or 20 pupils per teacher were suggested.

Provisions are needed to take care of surpluses or deficits in districts taken into larger districts. There was widespread feeling, also, that there should be one school treasurer for a county or for each larger administrative district, doing away with the present township school trustee and treasurer system.

Some groups would establish a minimum tax rate for all real estate for educational purposes, so that areas with high valuations would be required to help support their fair share of the cost of education. It was generally felt that equalized valuations and tax rates should be assured throughout the county and as between the various counties. In many areas there was demand for an amendment to the state Constitution to provide for a more modern tax system and to relieve the heavy burden on real estate.

Finally, it was generally agreed that the nine counties failing to elect to carry on surveys should be given another chance to vote on the matter. There was also some sentiment in favor of setting up permanent citizens' advisory committees in the counties to study and from time to time make recommendations for the improvement of the schools in the county.

Illinois now has a good School Survey Law; it is democratic and calls for study and widespread discussion of proposed changes. It can be improved so that the changes that can and should take place in our system of school organization will be encouraged by law. We are now facing the first major effort in school reorganization that has taken place since the 1850's when all territory was put into some elementary school district. It remains to be seen whether the people of Illinois, by democratic methods, can provide for themselves a modern system of education throughout the state.

D. E. LINDSTROM

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 3-47, 8900
Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1931.....	73	65	77	110	84	77	71	95	74	75
1932.....	65	48	52	96	60	57	60	73	51	58
1933.....	66	51	56	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	101	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	90	85	89
1939.....	77	65	81	97	99	107	110	106	100	109
1940.....	78	68	86	98	107	114	116	115	114	125
1941.....	87	82	109	103	142	146	140	138	168	162
1942.....	99	105	140	117	197	200	169	171	245	199
1943.....	103	123	166	127	251	243	191	209	330	239
1944.....	104	124	168	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1945 Dec....	107	132	171	138	268	256	186	231	226	164
1946 Jan....	107	131	170	138	267	231	167	229	229	160
Feb.....	108	131	172	139	289	240	173	226	210	152
Mar.....	109	133	175	140	270	246	176	230	233	168
Apr.....	110	135	177	141	262	232	165	233	249	164
May.....	111	138	186	145	284	262	181	234	248	159
June.....	113	140	186	147	271	182	124	234	257	171
July.....	125	157	231	155	335	284	183	240	261	173
Aug.....	129	161	235	159	313	245	154	243	278	177
Sept.....	124	154	216	156	249	178	114	243	284	180
Oct.....	131	163	256	162	348	522	322	244	286	181
Nov.....	137 ¹¹	169 ¹¹	241	166	367	539	325	247	292	182
Dec.....	140 ¹¹	169 ¹¹	236	166	366	...	...	248	300	179

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Jan. 1946	Current months		
	1935-39	1945	1946		Nov.	Dec.	Jan.
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.06	\$1.20	\$1.18	\$1.18
Oats, bu.....	.31	.68	.77	.74	.76	.80	.79
Wheat, bu.....	.86	1.58	1.83	1.64	1.98	2.04	2.08
Barley, bu.....	.62	1.09	1.29	1.13	1.30	1.40	1.40
Soybeans, bu.....	.90	2.09	2.30	2.10	3.13	2.74	2.97
Hogs, cwt.....	8.52	14.25	17.53	14.30	23.30	23.00	22.30
Beef cattle, cwt.....	7.88	13.22	16.41	12.30	19.50	19.00	18.50
Lambs, cwt.....	8.36	13.77	16.38	13.40	20.80	20.40	20.60
Milk cows, head.....	58.00	125.50	147.00	128.00	160.00	165.00	165.00
Veal calves, cwt.....	8.66	13.99	16.78	14.40	21.00	20.10	22.50
Sheep, cwt.....	3.58	6.38	6.99	6.60	6.90	6.90	7.00
Butterfat, lb.....	.27	.48	.63	.48	.81	.82	.69
Milk, cwt.....	1.68	2.95	3.80	3.10	5.20	4.85	4.55
Eggs, doz.....	.19	.35	.34	.36	.38	.37	.35
Chickens, lb.....	.15	.25	.27	.23	.27	.27	.26
Wool, lb.....	.25	.43	.43	.43	.43	.44	.43
Apples, bu.....	1.08	2.99	3.37	4.00	2.50	2.55	3.00
Hay, ton.....	9.39	17.72	15.55	16.60	18.00	16.50	16.00
Potatoes, bu.....	.91	2.06	1.70	1.80	1.60	1.55	1.65

¹⁻¹² For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1919

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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MAINTAINING STABILITY IN THE MARKET-MILK INDUSTRY THROUGH THE USE OF FLEXIBLE PRICES

In view of the increasingly active part taken by state and federal governments in establishing prices to be paid milk producers, certain questions arise, such as: "Is there a practical mechanism for establishing producer prices which is sufficiently flexible to adjust prices upward or downward as rapidly as changing business conditions make desirable? Would such a plan have worked under the conditions of rapidly changing prices from 1915 to 1947? Is a plan available which will be helpful both in increasing milk consumption and in protecting producers' interests?"

Correct answers to such questions are imperative, particularly when we realize (1) that, under customary procedures, neither a bargaining association nor a governmental agency¹ can adjust prices upward or downward as rapidly as changing business conditions make necessary and (2) that growth of corporate forms of distribution and labor unions have resulted in the development of bargaining associations and, in some cases, in the development of governmental agencies in order to prevent or curb destructive competition.²

¹ In 1946, 23 collective milk bargaining and cooperative dairy associations operating in Illinois together had 20,961 active members and sold \$78,448,000 worth of milk. (From Illinois Agricultural Association Annual Report, 1946, pp. 47 and 48.)

At present some 15 state governments are taking an active part in the establishment of prices to be paid producers, and similar action is being taken by the federal government in 29 or more interstate markets. St. Louis, Chicago, and Rock Island and Moline each operate under a Federal Milk Order along with one or more bargaining associations.

² Bartlett, R. W., *Cooperation in Marketing Dairy Products*, 1931, pp. 19 and 20. Also *Hoard's Dairyman*, Vol. 80, No. 6, *Problems in the Fluid Milk Industry*, 1935, pp. 139, 148, and 153.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

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The importance of butter prices in arriving at market-milk prices. Many dairymen and consumers ask: "Why is so much importance placed upon butter prices in arriving at the price of market milk?"

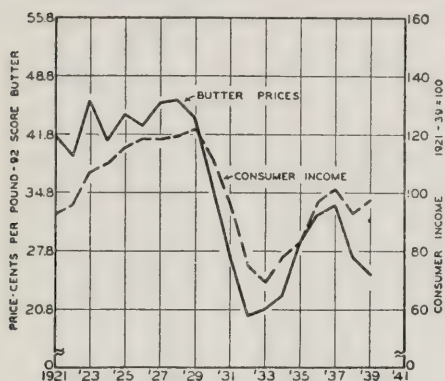


FIG. 1. — CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN CONSUMERS' INCOME IN THE UNITED STATES, FROM 1921 TO 1939

The reason for this emphasis is that butter prices constitute the best index available for measuring changes in supply and demand conditions for the dairy industry.

In the first place, we find that changes in consumers' incomes are quickly reflected in changes in butter prices (Fig. 1). Thus, from 1921 to 1939, the correlation between the average income per consumer and butter prices was .87.

In the second place, we find that prices paid to producers for milk to be condensed or to be made into cheese or ice cream

necessarily must be kept in line with butter prices, since under normal conditions about three-fourths of all the milk manufactured is used for butter and since milk can easily be shifted from one manufacturing use to another. Prices paid to producers for milk condensed or made into cheese have kept closely in line with butter prices (Figs. 2 and 3). The correlation between condensery prices and butter prices from 1921 to 1939, by months, was .98 as compared with .96, the correlation between cheese and butter prices during this same period. If we remember that a perfect correlation is 1.00, these coefficients indicate the high degree of relationship which has existed between the prices of condensery milk and butter and those of cheese and butter.

And finally, we find that in prewar years, for the country as a whole, only about 30 percent of the total milk supply was consumed as market milk, and that about 50 percent of the total volume of milk in most fluid markets was sold as sweet cream or was manufactured into products sold on the basis of butter prices.

During the war years, because of higher consumer incomes, shortages of many consumer goods, and relatively low milk prices, per capita consumption of market milk in the nation increased to about 42 percent of the total civilian supply. As conditions return more nearly to normal it is probable that the proportion of milk used as market milk will be somewhat less.

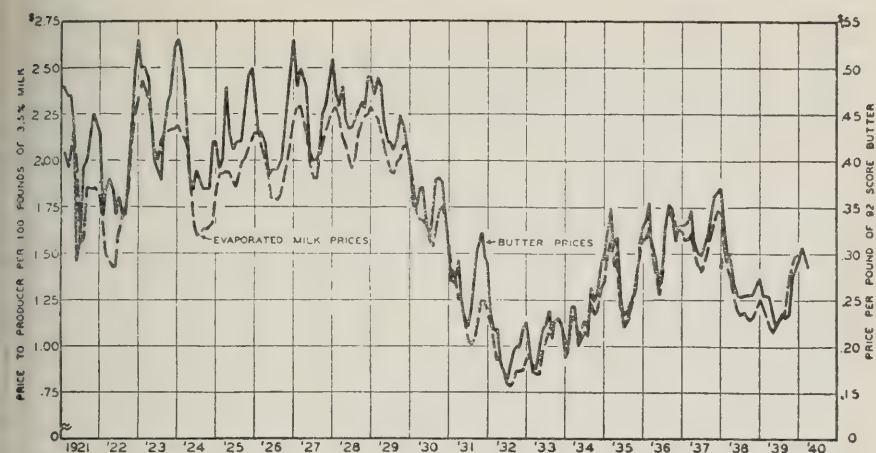


FIG. 2.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN PRICES PAID PRODUCERS FOR 3.5 PERCENT MILK AT CONDENSERIES IN THE EAST NORTH-CENTRAL STATES, BY MONTHS, FROM 1921 TO 1940

Prices of cream and manufactured milk used in eastern markets tend to keep closely in line with mid-western prices for these products. The correlation between the producer price per 100 pounds of milk in the Chicago condensery areas and the Boston wholesale price per 40-quart can of 40 percent cream f.o.b. Chicago shipped in carlots, from 1928 to 1946 was .95. In recent years about one-fifth of the cream purchased in Boston came from Wisconsin.

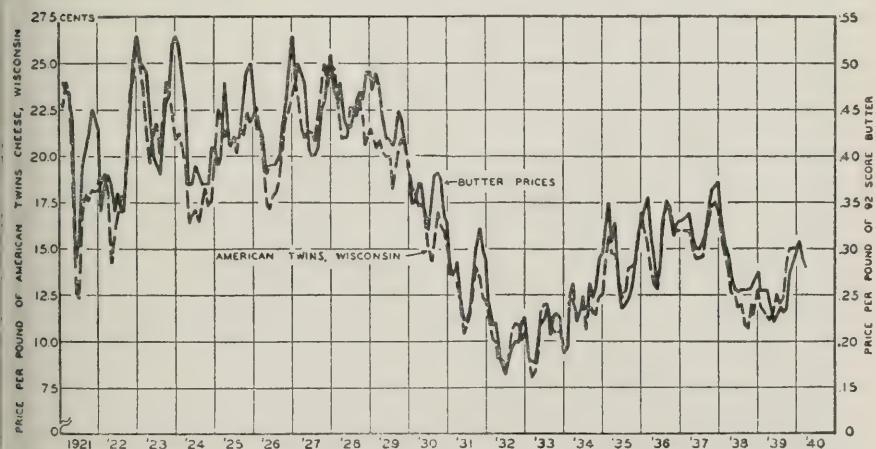


FIG. 3.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE PRICES OF AMERICAN TWINS CHEESE, WISCONSIN, BY MONTHS, FROM 1921 TO 1940

TABLE 1.—PRICES PAID PRODUCERS FOR 3.5% CONDENSERY MILK IN THE CHICAGO MILKSHED AND THE BOSTON WHOLESALE PRICE OF 40% CREAM F.O.B. CHICAGO, 1928 TO 1946

	Price per 100 pounds of Chicago condensery milk ^a	Boston wholesale price of 40% cream f.o.b. Chicago: 40-qt. can ^b
1928.....	\$2.15	19.22
1929.....	2.07	18.51
1930.....	1.67	15.32
1931.....	1.19	12.72
1932.....	.92	9.88
1933.....	1.02	9.77
1934.....	1.17	10.88
1935.....	1.36	12.48
1936.....	1.57	13.64
1937.....	1.57	14.16
1938.....	1.26	11.50
1939.....	1.24	11.02
1940.....	1.37	12.12
1941.....	1.85	16.04
1942.....	2.02	17.40
1943.....	2.61	21.40
1944.....	2.64	21.78
1945.....	2.60	22.16
1946.....	3.45	29.13

^a From Department of Agricultural Economics, Illinois Agricultural Experiment Station Mimeograph Report, AE 2426, December 1946.

^b USDA Production and Marketing Administration. Compilation of Statistical Material Governing Order 41 as amended and the Chicago, Illinois, Marketing Area, April 1941, and March 1947.

Prices paid producers for market milk in eastern markets likewise tend to keep in line with mid-western prices for milk. The correlation between the producer price per 100 pounds of 3.5 percent milk in the Chicago milkshed and the New York country plant price for 3.7 percent milk, for the 37-year period, 1910 to 1946, was .98.

Price flexibility versus rigidity in the Chicago and the St. Louis milk areas. Under competitive conditions, changes in the prices paid producers for market milk in the Chicago and the St. Louis dairy districts have kept very closely in line with changes in butter prices (Figs. 4 and 5). The correlation between the prices paid producers for 3.5 percent milk at receiving plants in the Chicago area and the prices of 92-score butter at Chicago from 1907 to 1919 by months was .93. The correlation between the prices to St. Louis market-milk producers and the butter prices in Chicago from 1909 to 1929 was .95. Since a perfect correlation is 1.00, as we indicated before, these coefficients indicate the high degree of relationship which has existed between market-milk prices and butter prices in Chicago and St. Louis.

In contrast to the highly flexible prices which have existed under competitive conditions, the introduction of artificial price-mechanisms has tended to disrupt this price flexibility and to cause producer prices to be lower or higher than they naturally would be. For example, from January

1920 to October 1935, the prices paid producers for market milk in Chicago were frequently held at a level either too low or too high when these prices are compared with butter prices (Fig. 6). Thus, the correla-

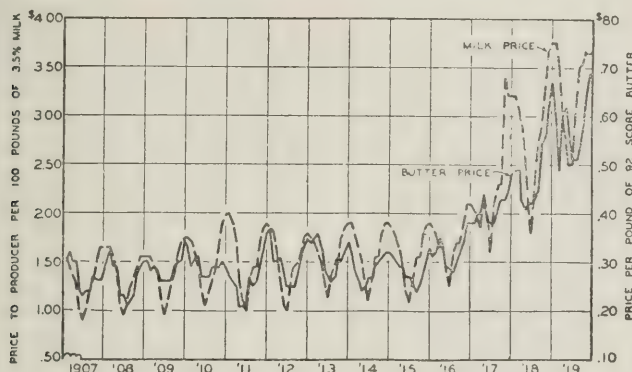


FIG. 4.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN THE AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET-MILK PRODUCERS, CHICAGO, BY MONTHS, FROM 1907 TO 1919

tion between Chicago milk prices and butter prices from 1920 to 1929 by months was only .66 as compared with .93 from 1907 to 1919. During this later period, particularly from 1923 to 1930, late fall or early winter prices paid producers for milk were too low in comparison with spring and summer prices. For the period January 1920, to October 1935, the correlation between Chicago milk prices and butter prices averaged .80.

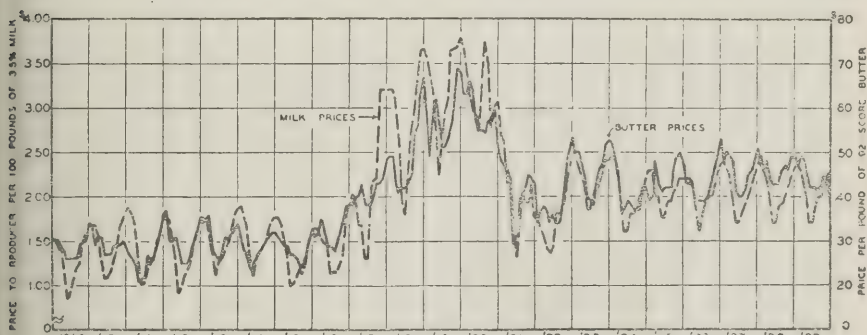


FIG. 5.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET-MILK PRODUCERS IN ST. LOUIS, BY MONTHS, FROM 1909 TO 1929

Between 1930 and 1940, market-milk prices in the St. Louis area were less flexible than they were previously. Thus, the correlation between St. Louis milk prices and butter prices from January 1930, to April 1940,

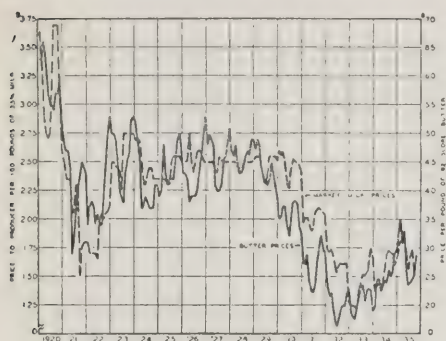


FIG. 6.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN THE AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET-MILK PRODUCERS, CHICAGO, BY MONTHS, FROM 1920 TO OCTOBER 1935

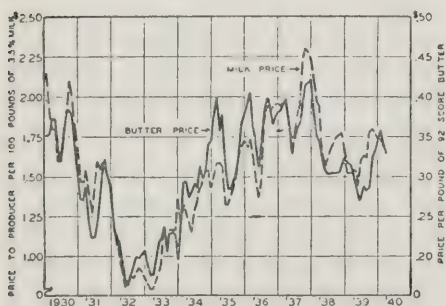


FIG. 7.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET-MILK PRODUCERS, ST. LOUIS, BY MONTHS, FROM 1930 TO 1940

(Fig. 7) was .78 as compared with .95 from 1909 to 1929. This increased rigidity in market-milk prices can be attributed primarily to the use of rigid Class I prices which were held either too low in the fall or winter months when compared with spring or early summer prices, or at a level too low or too high for the year as a whole.

During the past few years, milk has been scarce in the St. Louis area, especially in certain months.¹ This scarcity indicates that milk prices during the shortage season have been too low as compared with those in other months of the year.

Actual and code prices for condensery milk. Actual prices paid condensery producers from 1921 to 1932, the 12-year period preceding the use of formula prices, averaged \$1.800 per 100 pounds of 3.5 percent milk as compared with \$1.827, the prices producers would have received had the minimum code prices been paid (Fig. 8). This comparison indicates that the "bottom" of code prices was slightly higher than were actual prices received.² Further analysis, how-

¹ In recent years at least one large dealer in this area has been forced to haul milk from a plant 300 miles from St. Louis in order to obtain a supply sufficient to meet his market demand.

² The correlation between actual and code prices from January 1921 to August 1933, was .90. This indicates the high degree of relationship which existed between these two factors for this period.

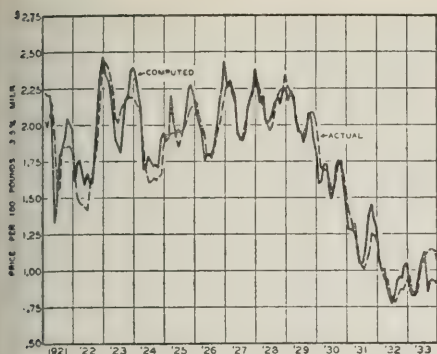


FIG. 8. — CHANGES IN ACTUAL PRICES PAID PRODUCERS FOR 3.5 PERCENT MILK AT CONDENSERIES IN THE EAST NORTH-CENTRAL STATES COMPARED WITH PRICES COMPUTED ON THE BASIS OF THE FEDERAL EVAPORATED MILK CODE, BY MONTHS, FROM 1921 TO 1939

ever, has shown that producers were paid a premium above the code price in 59 out of the 76 months from September 1933, to December 1939, or during over three-fourths of the time. In 1939, premiums above the code price were paid in 11 out of the 12 months, and they ranged from 1 cent to 17 cents per 100 pounds, and averaged 3.7 cents.

Since 1940, actual condensery prices paid producers have been considerably higher than the "formula code prices." These prices are shown as follows:

Prices per 100 pounds of 3.5% milk

	<i>Actual (Average of 18 condenseries)</i>	<i>Code (Computed)</i>	<i>Net difference</i>
1940.....	1.37	1.34	\$.03
1941.....	1.85	1.62	.23
1942.....	2.02	1.88	.14
1943.....	2.61	2.05	.56
1944.....	2.64	1.96	.68
1945.....	2.60	1.99	.61
1946.....	3.45	2.94	.51

With a return to supply and demand conditions for determining butter prices, it is probable that there will be much less difference during the next few years between actual prices paid condensery producers and "formula code prices."

Determination of Chicago milk prices under a flexible price plan. In November 1935, the Pure Milk Association in Chicago adopted the forward-looking policy of establishing the Class I price for milk directly upon condensery prices, with the understanding that premiums above these prices would be adjusted upward or downward as supply and demand conditions warranted.¹ At various times since then the Class I price has been 30, 35, 50, 53, 58, 60, 65, and 75 cents above the condensery price, the price depending upon varying conditions which have existed in

¹ Premiums above condensery prices are necessary to pay for the extra costs of meeting the quality requirement and to insure a uniform supply of milk throughout the year.

this market. Premiums have reflected local conditions, while changes in condensery prices which are based largely on butter prices have reflected changes in consumer incomes and milk supplies. The correlation between Chicago market-milk prices and butter prices from November 1935 to August 1939 was .92 (Fig. 9). This correlation can be compared with .66 for 1920 to 1929 and .80 for 1920 to 1935—periods in which prices were less flexible at many times.

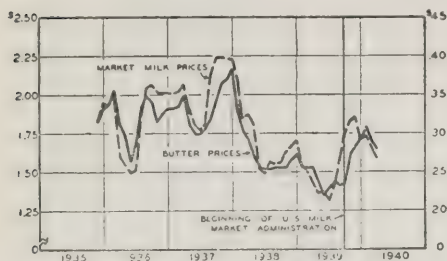


FIG. 9.—CHANGES IN AVERAGE PRICES OF CHICAGO 92-SCORE BUTTER COMPARED WITH CHANGES IN AVERAGE COUNTRY PLANT PRICES RECEIVED FOR 3.5 PERCENT MILK BY MARKET-MILK PRODUCERS, CHICAGO, NOVEMBER 1935 TO 1940

On September 1, 1939, the flexible-price plan was incorporated as part of the Federal Order, which then became effective for all Grade A shippers to the Chicago market. Under this Order,

dealers paid premiums above the federal code price from September 1, 1939, to September 5, 1941. Beginning September 6, 1941, premiums for Class I and Class II milk were paid above the Class III price which is the average price paid each month at 18 specific condenseries adjacent to the Chicago milkshed. Premiums authorized under the Federal Order above the federal code price and the actual condensery prices have been as follows:

	Class I (Whole milk) (Cents per 100 pounds of milk)	Class II (Cream) (Cents per 100 pounds of milk)
<i>September 1939 to September 5, 1941</i>		
July to November.....	70	32
December to April.....	55	25
May to June.....	45	20
<i>September 6, 1941 to December 1942</i>		
July to April.....	70	32
May to June.....	50	20
<i>January 1943 to December 1946</i>		
July to April.....	70	32
May to June.....	70	20
<i>January 1947 to date (April 1947)</i>		
July to April.....	70	32
May to June.....	50	20

This price for Class IV milk made into butter is the price of Chicago 92-score butter times 3.5 plus 20 percent.

The average price paid by the 18 condenseries in March 1947 was \$3.521 per 100 pounds of 3.5 percent milk. Hence the Class I price was

\$4.221 ($\$3.521 + .70$) and the Class II price was \$3.841 ($\$3.521 + .32$). The price for Class IV milk in March was \$3.271.

Chicago Federal Orders provide that Class I premiums shall be above the average price paid at the 18 specific condenseries, or the price of Chicago 92-score butter plus skimmilk values, *whichever is higher*.

Proceeds from the sale of milk under the Federal Order 41 are pooled, and all Grade A producers receive the same blend price subject to butterfat and transportation differentials.

Federal Order 69 became effective in September 1944 and operates in suburban Chicago. Under this Order each dealer pays the same classification prices as other dealers. Unlike Federal Order 41, however, the proceeds of all dealers in suburban Chicago are *not* pooled. Rather the total dollars from the sale of milk to each dealer are pooled and divided by the dealer's total volume to arrive at the blend price to be paid this dealer's producers. Under this Order, each dealer may have a blend price different than that returned by other dealers.

What about the workability of the flexible-price plan under conditions of changing prices?

The principle of gearing market-milk prices to manufacturing prices is basically sound and proved itself in practice during World War II. Under the flexible features of this plan, the Class I (whole milk) price increased automatically from \$1.99 per 100 pounds in September 1939 to a high of \$5.25 in November 1946.

As a result of the high degree of price flexibility under the Federal Orders there were no major conflicts between producers and dealers during World War II. This situation stands out in sharp contrast to that of World War I when market-milk prices were not kept in line with manufacturing prices, and when there were several milk strikes and dumping of milk in the market-milk areas.

Under a flexible-price plan established under a Federal Order, can artificially high prices be prevented?

As long as new producers are permitted to enter the market at any time and as long as old producers are permitted to increase their production, any attempt to establish artificially high prices will soon be thwarted through over-production. Facts pertaining to total milk production, changes in the number of producers, daily production per farm, and total milk sales are published currently by the Milk Market Administration in Chicago. Similar facts have been published for 13 years by the Milk Market Administration in St. Louis.

In the final analysis, under the present flexible-price plans in Chicago and in St. Louis, the prices received by producers will be determined by the collective judgment of dairymen in these areas as measured by their production in relation to demand. Vigilant consumer groups, as well as

other groups, can be on the alert to analyze facts made available currently, and they can present the results of their findings at public milk hearings, through newspapers, and through specialized group meetings.

The availability to all groups of facts which show market-wide changes in production, consumption, and prices and which are made possible under a Federal Order stands out in sharp contrast with the lack of such information in Chicago and in St. Louis prior to the use of these Orders. Although certain groups, such as the milk dealers or the milk producers' association, may have known these facts for their own organization, market-wide facts in this earlier period were not available to anyone.

Competition of milk with alternative products. With the exception of a price decline in 1938, Federal Milk Orders have operated during a period of rising prices, 1934 to 1947. The real test of these Orders will come during the next few postwar years when, if history repeats itself, milk prices will be lower. In this connection it is important to remember that farmers tend to shift their production to the products which are most profitable. For example, if the prices of market milk are high in relation to condensery prices, condensery producers get their farms and equipment inspected and prepare to sell market milk. A greater supply of market milk with no increased demand tends to lower market-milk prices. Likewise, if condensery or butter prices are high as compared to prices of beef cattle, beef cattle producers having dual purpose cows, sell more milk

TABLE 2. — CHANGES IN CHICAGO WHOLESALE PRICES OF MILK, BEEF STEERS, CORN, AND HOGS, 1914 TO 1922 AND 1939 TO 1946

3.5% Milk Chicago Milkshed (per cwt.)		Beef Steers (per cwt.)	
1914.....\$ 1.60	1939.....\$ 1.56	1914.....\$ 8.65	1939.....\$ 9.75
1915.....1.58	1940.....1.67	1915.....8.40	1940.....10.43
1916.....1.72	1941.....2.06	1916.....9.50	1941.....11.33
1917.....2.37	1942.....2.45	1917.....11.60	1942.....13.79
1918.....2.87	1943.....3.08 ^a	1918.....14.65	1943.....15.30
	1944.....3.50 ^a		1944.....15.44
	1945.....3.54 ^a		1945.....16.18
1919.....3.25	1946.....4.17 ^a	1919.....15.50	1946.....19.16
1920.....3.17	1947.....?	1920.....13.30	1947.....?
1921.....2.09	1948.....?	1921.....8.20	1948.....?
1922.....1.87	1949.....?	1922.....8.65	1949.....?
Corn (per bushel)		Hogs (per cwt.)	
1914.....\$.70	1939.....\$.57	1914.....\$ 7.22	1939.....\$ 6.23
1915......79	1940......62	1915.....8.84	1940.....5.39
1916.....1.11	1941......75	1916.....13.75	1941.....9.09
1917.....1.63	1942......92	1917.....17.45	1942.....13.04
1918.....1.62	1943.....1.12	1918.....19.00	1943.....13.70
	1944.....1.09		1944.....13.10
	1945.....1.14		1945.....14.00
1919.....1.59	1946.....1.41	1919.....14.65	1946.....17.30
1920......62	1947.....?	1920.....9.66	1947.....?
1921......55	1948.....?	1921.....9.01	1948.....?
1922......73	1949.....?	1922.....7.93	1949.....?

^a Includes federal subsidy.

or cream. This in turn tends to lower the milk and cream prices. Hence, generally speaking, in times of major price changes, prices of the principal agricultural products tend to go up and down together. This fact has been illustrated by changes in the prices of the various dairy products. It is also illustrated by changes in the prices of milk, corn, hogs, and beef cattle for World War I and World War II. These changes are shown in Table 2.

R. W. BARTLETT

CHANGES IN LIVESTOCK NUMBERS ON 2,410 ILLINOIS ACCOUNTING FARMS IN 1946

Illinois accounting farmers had 1.7 percent more beef cows, 5.5 percent more feeder cattle and 10.2 percent more brood sows on their farms January 1, 1947, than a year earlier. On the other hand, they had 3.6 percent less spring pigs, 19.9 percent less summer pigs and 45 percent less feeder lambs. There was no change in dairy cows or fall pigs (Table 1).

These percentage changes are based on the numbers of livestock in the January 1, 1946, and January 1, 1947, inventories of 2,410 accounting farms. These farmers had on January 1, 1947, a total of 18,279 dairy cows, 8,765 beef cows, 26,087 feeder cattle, 8,705 feeder lambs, 133,510 spring pigs, 20,149 summer pigs, 81,160 fall pigs and 29,679 brood sows (Table 2). Eighty-six percent of the farms had dairy cows and 80.6 percent had brood sows but only 2.3 percent had feeder lambs.

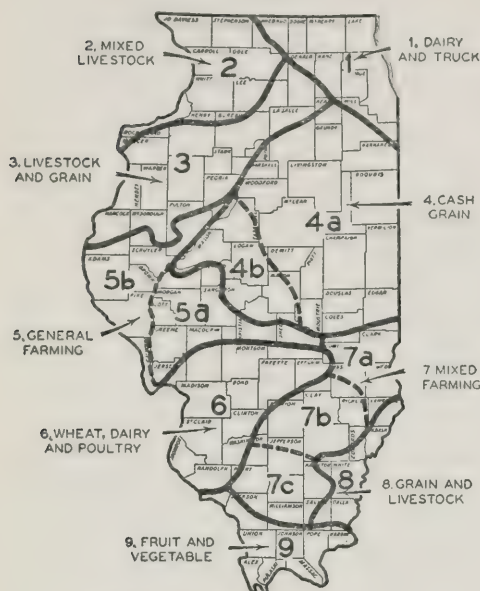
The sample was very much larger in some farming-type areas than in others, ranging from 796 farms in Area IV in East Central Illinois to 84 farms in Area VIII and 30 farms in Area IX in Southern Illinois. The percentage changes in livestock numbers for the state were determined by calculating the average number of livestock per farm for each

TABLE 1. — NUMBER OF ACCOUNTING FARMS STUDIED BY TYPE-OF-FARMING AREAS AND THE PERCENTAGE CHANGE IN LIVESTOCK NUMBERS FROM JANUARY 1, 1946 TO JANUARY 1, 1947

Farming-type area	Number of farms	Percentage change Jan. 1, 1946 to Jan. 1, 1947							
		Dairy cows	Beef cows	Feeder cattle	Feeder lambs	Spring pigs	Summer pigs	Fall pigs	Brood sows
		%	%	%	%	%	%	%	%
I.....	104	+3.1	0.0	-15.5	....	+ .3	-27.5	+33.3	+26.9
II.....	355	-1.9	+21.5	+ 6.4	-53.5	- 1.3	- 4.8	- 3.8	+14.1
III.....	413	-1.2	- 1.2	+ 4.7	-50.4	+ 6.1	-43.8	+ 4.7	+10.8
IV.....	796	-1.1	+ 6.3	+19.1	-43.5	+ 7.9	-10.4	- 2.8	+ 9.4
V.....	212	+2.7	- 3.4	+ 4.9	-72.8	-29.1	+ .6	- 8.5	+ 6.4
VI.....	252	- .5	+ 5.6	+24.0	....	-15.6	-16.2	-17.5	- 4.6
VII.....	164	-4.5	- 3.5	+18.5	-28.0	- 1.2	-56.4	+ 3.3	+ 6.9
VIII.....	84	-1.5	0.0	-41.8	....	+13.5	-45.0	+ 1.8	+14.8
IX.....	30	0.0	+ 1.6	- 1.9	....	-69.6	+137.9	+76.7	- 7.4
Total or average 2,410		— .2*	+ 1.7	+ 5.5	-45.0	- 3.6	-19.9	+ .2	+10.2

* State average change was calculated by weighting the area average numbers per farm for each period by the number of census farms in the area.

area and weighting these averages by the number of census farms in the area to secure a state average for each period. The weighted averages for the two periods were compared to get the increase or decrease for each class of livestock.



The Nine Major Type-of-Farming Areas in Illinois

The changes in livestock numbers for each class of livestock were far from uniform by farming-type areas. A part of the lack of uniformity was due, no doubt, to the small sample in some areas but it is logical to expect increases in some areas and decreases in others. Increases in dairy cow numbers in Areas I (the Chicago whole milk area) and V (the general farming area) were offset by small decreases in other areas, there being practically no change for the state as a whole.

Beef cows increased in four areas but remained unchanged or decreased in five areas. Feeder cattle increased in all but three areas two of which were in the southern part of the state. In Area VIII where the percentage decrease was large, 18 farms had increases, 14 no change and 23 had decreases. Ninety-one farms had feeder lambs at the beginning of the year but only 56 at the end. Since the sample was very small, the percentage change may be quite

TABLE 2.—NUMBER OF FARMS REPORTING VARIOUS CLASSES OF LIVESTOCK AND THE NUMBERS OF LIVESTOCK ON 2,410 ILLINOIS ACCOUNTING FARMS
JANUARY 1, 1946 AND JANUARY 1, 1947

	Number of farms reporting		Number of livestock		Percentage of farms having l.s. on Jan. 1, 1947
	Jan. 1, 1946	Jan. 1, 1947	Jan. 1, 1946	Jan. 1, 1947	
Dairy cows.....	2,097	2,084	18,379	18,279	86.5
Beef cows.....	814	788	8,481	8,765	32.7
Feeder cattle.....	982	954	24,373	26,087	39.6
Feeder lambs.....	91	56	16,763	8,705	2.3
Spring pigs.....	1,067	1,060	33,649	33,510	44.0
Summer pigs.....	592	495	25,827	20,149	20.5
Fall pigs.....	1,501	1,397	81,323	81,160	58.0
Brood sows.....	1,945	1,942	26,866	29,679	80.6

TABLE 3. — LIVESTOCK ON ILLINOIS FARMS JANUARY 1, 1947 AS REPORTED BY ILLINOIS COOPERATIVE CROP REPORTING SERVICE (THOUSANDS)

	Jan. 1, 1946	Jan. 1, 1947	Percentage change
Dairy cows.....	1,143	1,120	- 2.0
All cattle.....	3,176	3,303	+ 4.0
Hogs.....	6,337	5,893	- 7.0
All sheep and lambs.....	743	688	- 7.4
Cattle on feed.....	454	500	+10.1
Brood sows.....	860	937	+ 9.0

inaccurate. The only increase in summer pigs was for Area IX where nine farms had increases and six farms had decreases. Brood sows increased for all areas except VI and IX.

Since the data were taken from a highly selected group of farms they do not represent a cross section of the state. Accounting farms are much larger and have more livestock than average farms. The accounting farms had 12.0 brood sows per farm on January 1, 1947, whereas data released by the United States Department of Agriculture indicated an average of 4.5 sows per farm for Illinois. The following data indicate the percentage change in livestock on all Illinois farms as reported by the U.S.D.A. (Table 3). Dairy cows, cattle on feed and brood sows are classes of livestock which can be compared with data from the farm accounts. Dairy cow numbers remained unchanged on the accounting farms but declined 2.0 percent for all Illinois farms. Cattle on feed increased 5.5 percent on accounting farms and 10.0 percent on all farms. Brood sows increased 10.2 percent on accounting farms and 9.0 percent for all farms. The ratio of change was very similar in the two studies for the dairy cows and brood sows which are classes of livestock found on a high percentage of the accounting farms.

Seventeen hundred and thirty-eight of the farms had spring litters and these made up 58 percent of all litters farrowed during the year (Table 4). Summer litters accounted for eight percent and fall litters

TABLE 4. — LITTERS FARROWED^a IN 1946 ON 2,410 ILLINOIS ACCOUNTING FARMS

Farming-type areas	Spring		Summer		Fall		Total number of litters	Average No. of litters per farm
	No. of farms reporting	Number of litters	No. of farms reporting	Number of litters	No. of farms reporting	Number of litters		
I.....	42	555	11	58	25	226	839	8.1
II.....	278	4,274	50	412	146	1,622	6,308	17.8
III.....	359	6,818	69	978	279	4,182	11,978	29.0
IV.....	568	5,500	137	745	419	3,184	9,429	11.8
V.....	147	1,683	40	384	130	1,212	3,279	15.4
VI.....	156	638	54	151	141	635	1,424	5.6
VII.....	106	555	27	79	104	492	1,126	6.9
VIII.....	66	332	17	47	58	269	648	7.7
IX.....	16	34	7	9	17	49	92	3.1
Total.....	1,738	20,389	412	2,863	1,319	11,871	35,123	....

^a Spring pigs (Jan.-May); Summer pigs (June-July); Fall pigs (Aug.-Dec.).

34 percent of the total of 35,123 litters. The average number of litters per farm ranged from 29 in Area III (West Central Illinois) to three in Area IX. Official livestock production goals for 1947 call for a 17 percent increase in spring litters for Illinois. The hog-corn price ratio during the breeding season was at a near record level, therefore an increase in sows for spring farrow very much above the 9.0 percent reported by the U.S.D.A., December 1, survey was anticipated. The accounting farmers had 10.2 percent more brood sows on hand January 1, 1947, than a year earlier which checks very closely with the U.S.D.A. December estimate.

The smaller than anticipated increase in 1947 spring litters may be due to the fact that farmers feel that hog prices are likely to decline sharply from the present high levels before the spring pigs are marketed. Prices in 1946 fluctuated widely, in part, because of government controls, and farmers are still pessimistic about future prices. Many farmers, because of a shortage of labor, worked harder than usual during the war and now that grain prices are at a fairly high level they can get a reasonable income without raising hogs. A similar situation prevails with respect to feeder cattle.

Thirty percent more stocker and feeder cattle were shipped into Illinois from July through December 1946 than a year earlier. The large flow of cattle into feedlots led many to expect more than the 10.1 percent increase which was reported by the U.S.D.A. on January 1, 1947. Since the accounting farms show only a 5.5 percent increase, this study lends no weight to the theory that the U.S.D.A. survey underestimated the number of feeder cattle on Illinois farms.

Federally inspected slaughter of cattle in the United States was 15 percent larger from November 1946 through February 1947 than a year earlier which indicates that fed cattle have been moving back to market in large volume. Many Illinois feeders report that they sent their cattle back to market with a shorter than normal feed to take advantage of the favorable price spread and to avoid the danger of a future drop in price. They are not sure of how long the present prices will hold and "a bird in the hand is worth two in the bush."

The small increase in sows for 1947 spring farrow, the large stocks of feed grains per animal unit, and the favorable hog-corn ratio should stimulate the breeding of sows for summer and fall farrow. Summer pigs should be profitable since hog prices will be good at time of market, even though lower than present abnormally high levels.

Farmers who are feeding high quality cattle have an improved outlook for summer and fall prices since the numbers now on feed are materially below expected levels.

P. E. JOHNSTON

WHAT'S AHEAD FOR SOYBEANS?¹

The United States during the war suffered a large loss in imports of oils and fats; yet demand for those products was abnormally high. Civilian employment and income were greatly above prewar. The demand for exports under lend-lease rose to high levels; military procurement was heavy; and — later — requirements for foreign relief became large. Under these circumstances, two lines of attack were indicated: First, to increase our production; second, to ration supplies. Both courses of action were pursued.

Except for the peak production year 1943-44, fats and oils were continuously in short supply during the war. As a means of assuring adequate supplies of fats for war uses, rationing at the manufacturing level was begun in October 1942. During the course of the war, rationing took several forms — general limitations on use in manufacture; prohibitions on the use of certain oils and fats in civilian food products; prohibitions on the use of others in civilian nonfood products; specific allocations of certain oils to manufacturers; and, at a somewhat later stage, rationing of food fats at the consumer level.

Despite some hardships and inequities, the rationing schemes served their purpose of providing adequate supplies of fats for war and at the same time assuring reasonable distribution of the supplies available for civilians. Military needs for fats per person were above those of ordinary civilian use. Moreover, to aid its allies, the United States shifted from a net importing to a net exporting basis in fats, to the extent of about 2 billion pounds a year. That is, from a net importer of 1.5 billion pounds the United States became a net exporter of over 600 million pounds in two of the most critical war years, 1943 and 1944. The United States continued to be a net exporter in 1945 and through the first half of 1946.

Civilian consumption of visible fats declined during the war, but not by alarming proportions. Most of the decline was in butter. In terms of diet, the decline in consumption of visible food fats was more than offset by record consumption of foods high in fat, such as meat, fluid milk, and eggs. Nevertheless, consumers seldom had as much visible fat during the war as they desired. Civilian consumption of visible food fats declined from an average of 46 pounds per person in 1937-41 to 40 pounds in 1945. Consumption of fats in nonfood products — soap, paint, linoleum, and so on — remained comparatively steady at about 24 pounds per person. There was no consumer rationing of soap and paints. In view of the unusual demands, supplies of those products appeared critically short at times.

¹A portion of a paper presented before the Soybean Conference, Northern Regional Research Laboratory, Peoria, Illinois, February 27-28, 1947.

The wartime role of soybean meal was no less colorful than that of soybean oil. With output jumping from a million tons to over 3 million tons a year, soybean cake and meal made important contributions to victory on the food front. Large supplies of protein supplements were essential to the record production rates achieved for milk and eggs, and contributed in some measure to the record outputs of pork and beef. Soybean proteins also found their way directly into human consumption.

Use of soybeans for full-fat flour in 1943-46 averaged about 1½ million bushels a year. Most of the full-fat flour was produced for export. Use of soybeans for low-fat flour, after extraction of oil, averaged about 5 million bushels annually. Around 2 million bushels of this went into flour for commercial use in the United States and the remainder into flour for export. Use of soybean flour in the United States is likely to increase gradually as continued trial and research lead to better types of flour. Soybean flour in recent years has been used principally in bakery products, meat products, cereal mixes, candy, and dog food.

Today, with most of the war regulations ended, we find fats and oils in short supply on a world-wide basis. The situation in the United States is affected by the critical shortages in Europe. Before the war, continental Europe produced about 10 billion pounds of fats annually, and imported nearly 5 billion. Production on the Continent in 1947 will total less than 8 billion pounds, and imports will be between 2 and 3 billions. Thus, for the Continent as a whole, excluding Russia, consumption of fats will be less than three-quarters of prewar. Perhaps the worst deficiency areas today are Germany and Austria. Those two countries formerly obtained a part of their fat supplies from surplus-producing regions in Poland and Southeastern Europe. Under present occupation policies there are few, if any, shipments from eastern to central and western Europe.

Europe's recovery in fat production probably will be slow. Its greatest deficiency is in hog fats. After World War I, eight years were required to restore hog numbers in Europe to prewar levels. Production of other animal fats may recover more rapidly, as numbers of milk cows and other cattle were not reduced so drastically as hog numbers. At the earliest, however, total fat production on the Continent is not likely to reach prewar levels before 1950. Meanwhile, European demand for imports will be unusually high judged by prewar standards, not only because of deficiencies in domestic production and the cleavage between eastern and central Europe, but also because of population growth.

World needs for imports of oils and fats in 1947 are about 14 billion pounds, 40 percent above the prewar import average. Export supplies available in surplus areas in 1947 are calculated at 6.3 billion pounds. Thus, the export supply available today is less than half the demand, based on physical needs and prewar patterns of consumption.

Many important producing areas have not yet resumed exports on their prewar scale. These include the Netherlands Indies, Manchuria, India, French West Africa, and the Antarctic Ocean. Political unrest in the East Indies is holding back production and trade in palm oil and copra. Some copra is beginning to move from the outer islands of the East Indies. But virtually no palm oil is available for export from Sumatra and Java. Manchurian production of soybeans is reported to be down; and no Manchurian soybeans have appeared as yet in western trade.

Because of the rapid industrialization of India it is doubtful that that country will ever have an export balance in oilseeds and oils as large as before the war. Exports of oil-bearing materials and oils from India had been declining for many years; the decline has been more rapid in the past few years. Based on the physical needs of the people, India conceivably could become a large net importer of fats in the not too distant future.

Production of peanuts in West Africa was seriously reduced in the past year by lack of trade goods and other incentives for the native growers. Whaling operations in the Antarctic Ocean this season are held to about half the prewar level, chiefly by lack of whaling ships. Moreover, the present international agreement to conserve whales limits the total catch to about 60 percent of prewar.

Expanded internal demands are restricting exports of oil-bearing materials and oils from Brazil and Argentina. Also, Argentina has just had two years of drought. Current supplies of flaxseed in that country are considerably below prewar.

The only bright spot in the present foreign supply situation is the rapid recovery of the Philippine copra industry. Copra production in the Philippines is above prewar. But the excess production is small compared with deficiencies in other areas.

The United States is participating in the international program to allocate scarce supplies of fats among importing countries. In 1946 the United States had a small net balance of imports for the first time since 1942. However, because of the limited supplies available and the urgent needs of Europe, our net balance of imports in 1947 may be only a fifth to a fourth of the prewar balance. The principal items imported will be copra, linseed oil, and castor beans. The principal export item will be lard, with some soybean oil and soybean-oil products also being shipped.

Production of fats and oils in the United States in 1947 will be about 1 billion pounds above prewar, with soybean oil accounting for most of the gain. But net imports will be at least a billion pounds less. Moreover, our population is nearly 10 percent greater than prewar, and our stock position is unusually low.

If no allowance is made for increase in stocks this year, civilian consumption of visible fats in both food and nonfood products will amount

to about 64 pounds per person compared with an average of 70 pounds in 1937-41. If stocks are restored in part toward normal working levels, consumption of fats per person in 1947 will be lower than in any of the war years. No relief in the short supply situation is likely before new crops reach the market next fall.

Possible future developments. A substantial increase in domestic output of fats and oils is anticipated for the year beginning October 1947. Prices of soybeans, flaxseed, and hogs are now unusually high in relation to grain prices. Increased plantings of soybeans and flaxseed are likely this year. Also, the 1947 pig crop undoubtedly will be larger than that of 1946. Most of the fats and oils from these crops will become available in late 1947 and in the first 9 months of 1948. Prices will decline from the present abnormally high levels. But until world export supplies surpass those of the prewar years, prices are likely to stay well above the levels of the late 1930's.

The world's physical needs for oils and fats, based on prewar consumption standards, probably will not be fully met for four or five years. So the outlook for soybeans remains rather bright for that period. Over a longer period, soybeans will again face severe price competition from tropical oil-bearing materials. As a result of present shortages and high prices, palm-tree plantations are likely to be expanded in West Africa and perhaps South America during the next 10 years. Copra production in the Southwest Pacific probably will exceed the prewar output. And peanut production in Africa will be pushed, in part to make up for the decline in exports of edible oilseeds from India.

Palm nuts and kernels of a number of varieties probably offer the greatest potentialities for long-term expansion. The yield of palm oil per acre is high for well-tended groves, and large tropical areas are available for expansion of groves. Far-flung development of palm groves, however, will not come overnight. During the 1920's extensive palm-tree plantations were established in the Netherlands Indies and in Malaya. These trees did not come into full bearing until the late 1930's, when oil prices were low. That experience may induce excessive caution in restoring the plantations in the Far East and in planning new developments in other areas. However, the world at present is greatly in need of vegetable oil. The palm tree offers a certain, though comparatively slow, means of producing vegetable oils in abundance.

Soybeans in the United States will face continual competition from domestically-produced corn. Soybean meal is usually considered as a source of protein to supplement corn in livestock feeding. But it has been observed that changes in prices of soybean cake and meal are closely related to changes in prices of corn. That is, when corn is abundant and

relatively low priced, livestock feeders tend to use proportionately more corn in their feeding rations, thereby weakening the demand for soybean cake and meal. The advantages of buying protein supplements in periods of low corn prices will have to be repeatedly and abundantly demonstrated to the farmer if soybean cake and meal is to reap the full benefit of its natural qualities as a high-protein feed.

The outlook for soybeans over the next 10 or 15 years may be summarized as follows. First, during the next four or five years, the world supply of fats will continue below physical needs based on prewar standards. Also, the supply of livestock products in Europe will be comparatively low. There will be a strong European demand for soybean meal and soybeans, which will be supplied in part by the United States. But Manchurian soybeans may become a competitor within the next few years. That is uncertain, as the future trade policy for Manchuria is clouded by political disturbances.

Second, there will be a transitional period of another four or five years, when supplies of fats and protein meals will be in better balance with demands. Prices of soybeans will be below present high levels but above prewar.

Third, within 10 or 15 years world supplies of oil-bearing materials, and oils and fats, may become excessive if the probable expansion in plantation palm and other oil crops occurs. Prices of soybeans at that time would be depressed. But whatever the price conditions, it is highly probable that large-scale production of soybeans in the United States is here to stay.

ROBERT M. WALSH

Special Assistant to the Chief
Bureau of Agricultural Economics
United States Department of Agriculture

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 4-47, 11,900
Permit No 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1931.....	73	65	77	110	84	77	71	95	74	75
1932.....	65	48	52	96	60	57	60	73	51	58
1933.....	66	51	56	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	101	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	90	85	89
1939.....	77	65	81	97	99	107	110	106	100	109
1940.....	78	68	86	98	107	114	116	115	114	125
1941.....	87	82	109	103	142	146	140	138	168	162
1942.....	99	105	140	117	197	200	169	171	245	199
1943.....	103	123	166	127	251	243	191	209	330	239
1944.....	104	124	168	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1946 Feb.....	108	131	172	139	289	240	173	226	210	152
Mar.....	109	133	175	140	270	246	176	230	233	168
Apr.....	110	135	177	141	262	232	165	233	249	164
May.....	111	138	186	145	284	262	181	234	248	159
June.....	113	140	186	147	271	182	124	234	257	171
July.....	125	157	231	155	335	284	183	240	261	173
Aug.....	129	161	235	159	313	245	154	243	278	177
Sept.....	124	154	216	156	249	178	114	243	284	180
Oct.....	131	163	256	162	348	522	322	244	286	181
Nov.....	137	169	241	166	367	539	325	247	292	182
Dec.....	140	168	236	166	363	374	225	250	300	182
Jan.....	142	165	229	168	364	363	216	251	300	188
Feb.....	145 ¹¹	170 ¹¹	235	173	...	...	...	253	...	188 ¹¹

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			March 1946	Current months		
	1935-39	1945	1946		Jan.	Feb.	March
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.09	\$1.18	\$1.22	\$1.53
Oats, bu.....	.31	.68	.77	.76	.79	.79	.89
Wheat, bu.....	.86	1.58	1.83	1.66	2.08	2.16	2.55
Barley, bu.....	.62	1.09	1.29	1.13	1.40	1.45	1.55
Soybeans, bu.....	.90	2.09	2.30	2.10	2.97	3.06	3.85
Hogs, cwt.....	8.52	14.25	17.53	14.40	22.30	24.60	26.90
Beef cattle, cwt.....	7.88	13.22	16.41	14.00	18.50	18.00	19.30
Lambs, cwt.....	8.36	13.77	16.38	14.10	20.60	20.30	21.70
Milk cows, head.....	58.00	125.50	147.00	134.00	165.00	165.00	170.00
Veal calves, cwt.....	8.66	13.99	16.78	14.30	22.50	23.60	23.00
Sheep, cwt.....	3.58	6.38	6.99	6.60	7.00	7.10	7.40
Butterfat, lb.....	.27	.48	.63	.49	.69	.66	.71
Milk, cwt.....	1.68	2.95	3.80	3.05	4.35	4.05	4.00
Eggs, doz.....	.19	.35	.34	.30	.35	.34	.36
Chickens, lb.....	.15	.25	.27	.23	.26	.27	.28
Wool, lb.....	.25	.43	.43	.41	.43	.43	.43
Apples, bu.....	1.08	2.99	3.37	4.30	3.00	3.00	3.00
Hay, ton.....	9.39	17.72	15.55	16.00	16.00	16.50	16.00
Potatoes, bu.....	.91	2.06	1.70	1.80	1.65	1.60	1.70

¹²⁻¹² For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

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Number 144

BETTER FARM LEASES

The major objectives of a farm lease are to encourage good landlord-tenant relationships and to make possible and to promote profitable farming and better rural living. In order to accomplish these objectives there must be an equitable division of the expenses and receipts between the two parties, provision for maintaining or increasing the productivity of the farm, a satisfactory basis for living for the tenant, and a reasonable degree of security for the tenant to remain on the farm. As the agriculture of the country becomes older these needs become more apparent. A good farm lease arrangement must provide for conservation of the soil and the maintenance of the farm and buildings of the farm as an economic production unit. The provision for good home life and longer tenure of the tenant on the same farm have much to do in making him willing to put forth his best effort, not only with respect to his farming operations, but in caring for the property as well.

Extent of tenancy. In 1945 nearly three-fifths of the farmland in Illinois was operated by tenants, three-fourths of whom owned no land and one-fourth of whom owned part of the land they operated (Figure 1). The proportion of rented land varies widely in different parts of the state. About two-thirds of all the farmland in 25 counties in the heavy cash-grain area of central Illinois was rented. On the other hand, less than 50 percent of the farmland in 22 counties in southern Illinois was rented.

In addition to the 57.7 percent of farmland that was operated by tenants, 1.7 percent was operated by hired managers who in many cases were agents for tenants. This type of operation was most concentrated in northeastern Illinois but was not confined to that area. Counties with more than four percent of managed farmland follow: Lake, 19.5; Cook, 13.4; Kane, 9.1; DuPage, 8.4; McHenry, 6.9; Ogle, 6.9; Greene, 5.1; Boone, 4.8; and Jersey, 4.1.

About one-third of all the tenants were related to the landlord either by blood or by marriage. In some counties in northwestern Illinois two-fifths of the tenants were related to the landlords which lessens some of the problems associated with a high proportion of unrelated tenancy.

Need for improving farm leases. Many changing conditions which give rise to the need for improving farm leases, include the following:

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

ILLINOIS STATE
AVERAGE - 57.7 PERCENT

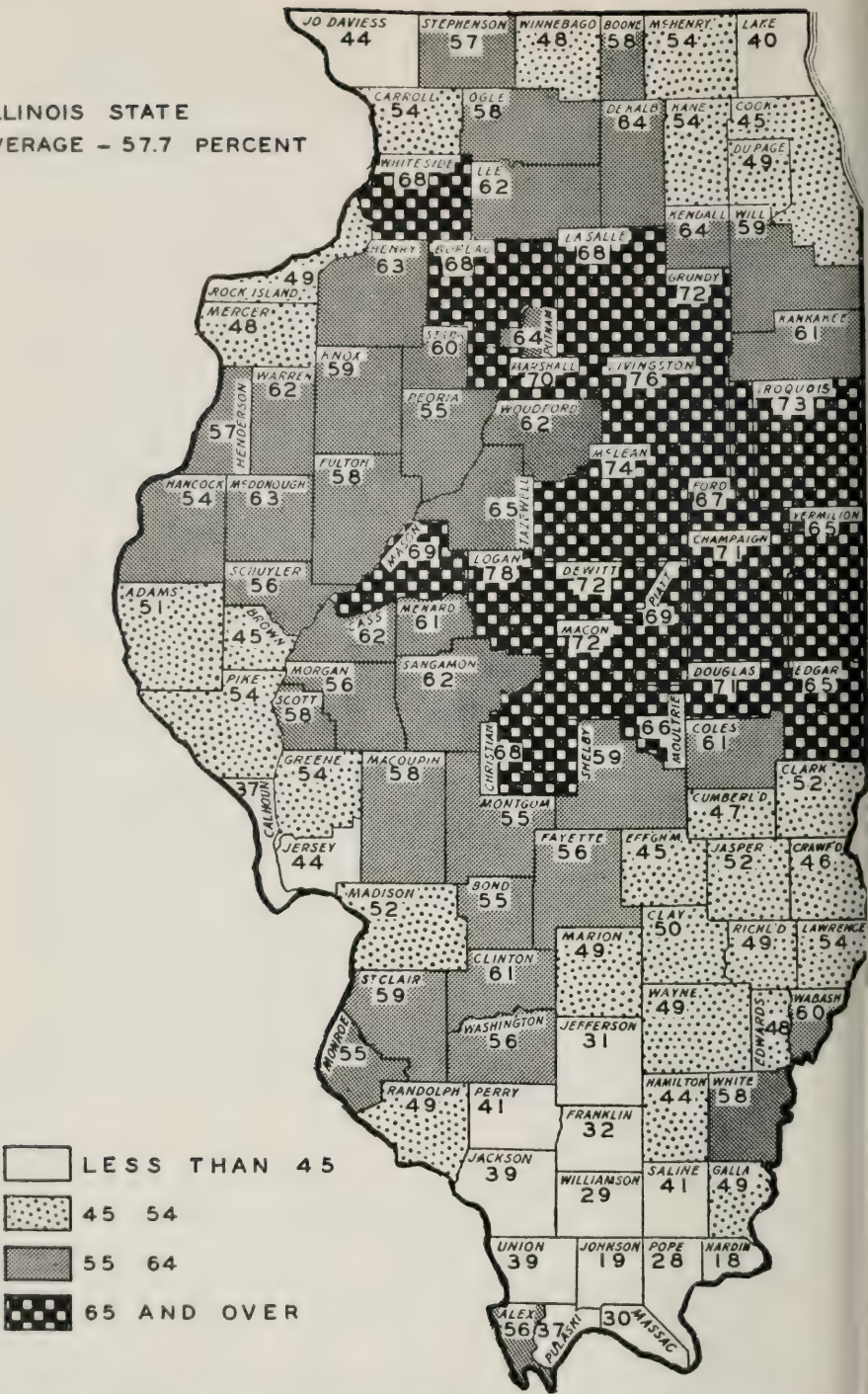


FIG. 1. — PERCENTAGE OF FARMLAND OPERATED BY TENANTS, ILLINOIS (1945 Census)

1. Since the war more farmers are ready to retire and more young men are starting farming than under normal conditions.
2. Many young men who should make good tenants lack sufficient capital to begin farming and need leases adjusted to their financial condition.
3. The care of the soil because of the heavy use it received during the war and the difficulties arising from erosion, requires well-developed plans for soil improvement involving the expenditure of more capital.
4. On many farms buildings are in poor repair and wasteful of labor, or more equipment is needed when livestock production is undertaken to fit into an improved cropping plan.
5. An improved level of living reflected in such improvements as better housing, electricity, running water, and sewage disposal requires capital investments and lease provisions to provide for their maintenance and perhaps some sharing of such costs.
6. The use of mechanical power and newer types of machines including combines, corn pickers, pickup hay balers, and field ensilage cutters raise questions involving the provisions of farm leases.
7. Changing price relationships, especially labor costs and other cost items in relation to farm income, may require adjustments in farm leases, especially on farms which have heavy cash expenses.

Types of Leasing

There are five principal types of leases in Illinois:

1. *The cash lease.* The cash lease is a rental agreement in which the tenant pays cash for the use of the farm and improvements. Less than one-sixth of the rented farms in Illinois are leased on the cash basis, and much of the cash leasing is confined to the Chicago dairy and truck crop area. A cash lease contains high risk for the tenant who guarantees to pay a definite sum of money for the use of the land regardless of the income he is able to make from the farm. Under a cash lease, rentals usually lag as price levels change. Thus, the tenant is at an advantage as net farm income increases and at a disadvantage as income decreases. This difficulty may be partially overcome by adjusting cash rentals with changing price levels and by making adjustments for crop failures. This arrangement is discussed later. Some landlords prefer a cash lease as it requires less supervision. A tenant may prefer the independence of a cash lease as he is sure of receiving the benefits of any superior management he possesses, and in good years it is likely to be more profitable to him than other forms of renting.
2. *The crop-share cash lease.* The crop-share cash lease is the most common type of lease in Illinois. The tenant gives a share of the grain crops and pays a cash rent for pasture and hay land. Some variations in

such leases occur from farm to farm, such as a tenant renting small areas of cropland on a cash basis. Many landowners and tenants prefer this type of lease because both parties share in the uncertainty of crop yields and the prices of farm products. This type of lease gives a landlord more opportunity to supervise the farm, and he has more interest in its operation.

3. *The share lease.* The share lease is very similar to the crop-share cash lease but is more commonly used where single fields are rented or where the untillable land has little or no rental value. This type of lease often results in exhaustive systems of farming because the land is usually rented for only one year without a written contract, a definite rotation of crops containing legumes is frequently lacking, and a part or all the crops are often hauled away from the farm.

4. *The livestock-share lease.* The livestock-share lease is growing in popularity with the growing need of systems of farming which will maintain the productivity of the farm. Under a livestock-share lease the landlord shares in the ownership of livestock except that work horses may not be shared. As is true of other forms of leases the tenant usually furnishes the labor and the major part of the power and machinery and the landowner furnishes repairs for buildings, fences, new buildings, insurance, and real estate taxes. Other expenses for the purchase of feed, seed, and veterinary bills are shared. Many landlords and tenants prefer the livestock-share lease because both parties share all risks and are mutually interested in all phases of the farm business. It makes possible a more productive system of farming and provides for the most economic use of roughages and low-quality crops.

Landlords consider that they are able to attract the best tenants under such leases while many tenants consider it an advantage for the landlord to share in furnishing operating capital and better permanent improvements. They are likely to be furnished because the landlord is anxious to obtain good returns from all farm enterprises. Successful livestock production requires good buildings and other equipment. Other kinds of leases usually do not provide for increased rentals to pay for depreciation and maintenance of the kind of buildings that are needed for a good livestock program. A livestock-share lease automatically takes care of this need if the tenant is a good livestock farmer.

5. *Manager-operator agreement.* The term "manager-operator agreement" is used to cover many instances where the owner furnishes the farm and most of the equipment. The manager-operator of the farm usually does not have all of the needed capital and various arrangements are entered into which are more fully discussed in Illinois Circular 587, entitled "Father-Son Business Agreements." Contract forms are also outlined in this circular.

There is no essential difference between a manager-operator agreement and a father-son agreement. Both provide for profit-sharing and the contract forms are largely interchangeable simply by substituting a few words; for example, owner for father and operator for son. Advantages of manager-operator agreements include the continued operation of the farm which is fully equipped and stocked, and avoids breaking up well-established herds. It gives the owner close supervision of the farm and is a convenient means of transferring the management of a well-organized farm to another operator. From the standpoint of the operator, it gives him an opportunity to grow into the management under the supervision of a qualified owner and gradually to obtain a larger share in the enterprise.

Farm lease type areas. The proportion of farm leases of different kinds and the amount of rent paid varies widely in different parts of the state (Figure 2). Soil conditions, topography, market outlets, and size of farms are important factors in determining both the type of farming which is followed in an area and the kind of lease used. The amount of rent paid under different kinds of leases also varies due to these same factors.

Cash leases occur especially in areas of truck and dairy farming. Eighty percent of all tenant-operated farms near Chicago are rented for cash. Crop-share-cash leasing is most popular in the heavy grain-producing areas of east-central Illinois. This is due largely to the fertility of the soil, proportion of tillable land, and large size of farms.

The straight crop-share leasing is found more generally in the southern one-third of the state where a tenant rents only certain fields which are used in growing crops or the untillable land is not highly productive and commands no rent. The livestock-share lease, while found to some extent throughout the state, is most common west and north of the Illinois River where, because of soil conditions and topography, large amounts of livestock are produced. A more uniform distribution of all types of leases is found in a few counties in the northwest part of the state where crop-share-cash, livestock-share, and cash rent are all used extensively. The manager-operator or father-son type of agreement is found throughout the state and represents an adaptation of leasing for men who are short of capital.

More intimate knowledge of farm leasing in Illinois may be gained from noting the leasing characteristics of local areas thruout the state.¹

¹ Sources of information: Rental shares — from 1938 work sheets of 112,000 farmers cooperating in the Agricultural Conservation Program; leasing practices, from mail questionnaires returned by 4,429 tenants representing every county in the state in 1940.

TYPE OF LEASE (PCT.)				
AREA	CROP SHARE A	CROP SHARE CASH B	LIVESTOCK SHARE C	CASH RENT D
1	1.0	7.4	11.4	80.2
2	4.3	27.3	43.8	24.6
3	10.5	56.1	20.7	12.7
3A-3B	18.5	59.5	15.6	7.4
4	12.9	75.7	6.2	5.3
6	17.7	66.2	5.9	10.3
7	49.3	28.3	13.9	9.6
STATE AVERAGE	15.1	55.5	15.6	14.0

A + B + C + D = 100%

A = CROP SHARE
B = CROP SHARE-CASH
C = LIVESTOCK SHARE
D = CASH RENT

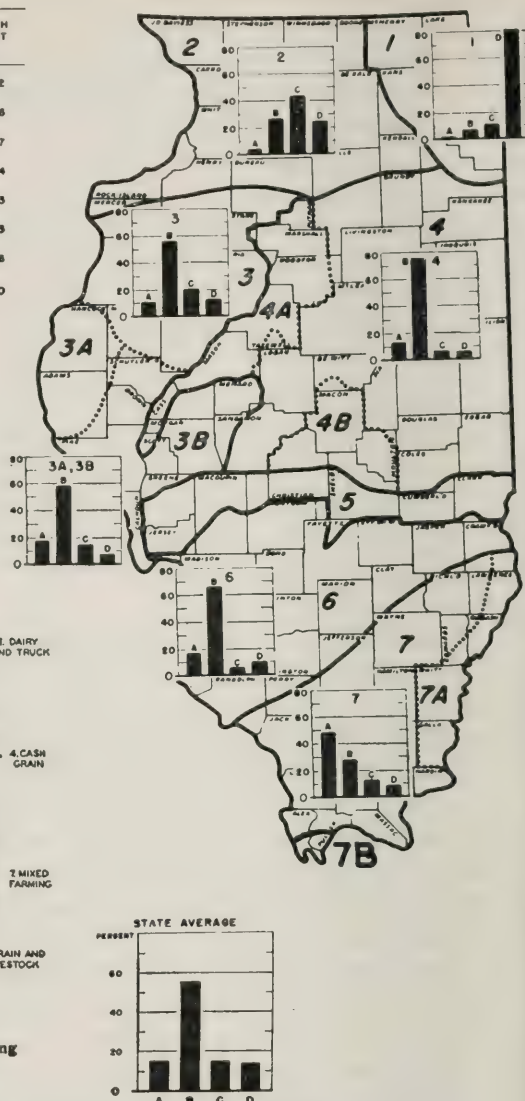
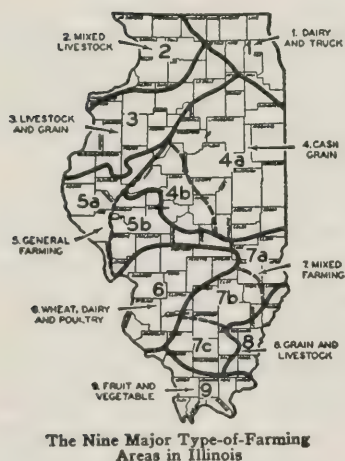


FIG. 2. — LEASE-TYPE AREAS IN ILLINOIS

1. *Chicago cash-rent area.* Eighty percent of the tenants use cash leases, rent depends on productivity of land, type of farming, buildings, and nearness to markets.

2. *Northwest mixed-lease type area.* Forty-four percent use livestock share leases; 32 percent, crop-share and crop-share-cash; and 24 percent,

cash leases. The usual share rent is one-half of crops except for small areas where, due to soil conditions, two-fifths rent is common.

3. *West-central grain and livestock area.* More grain farms and fewer livestock farms rent for crop-share than in Area 2; 66 percent, crop-share and crop-share-cash; 21 percent, livestock-share; and 13 percent, cash.

3A. *Hancock and Adams county mixed-rental-share area.* Lease types are similar to those of Area 3. Rental shares vary from one-half to two-fifths depending upon crop yields and share of seed furnished by the landlord.

3B. *South west-central area.* Crop-share-cash leases are used mainly, but many share renters pay no cash for hay and pasture.

4. *East-central crop-share-lease area.* Most grain farms are rented on crop-share-cash leases. Rental share is one-half, except in local areas or on less productive farms. Landlord usually pays half of seed expense.

4A. *Illinois River valley mixed-rental-share area.* One-third, two-fifths, and one-half share rents are common, depending upon local differences in yields and soil conditions. Crop-share-cash leases are used most widely.

4B. *Decatur optional rental-share area.* Small grains are rented for two-fifths if tenant furnished all of the seed. Crop-share cash is the predominant lease type used.

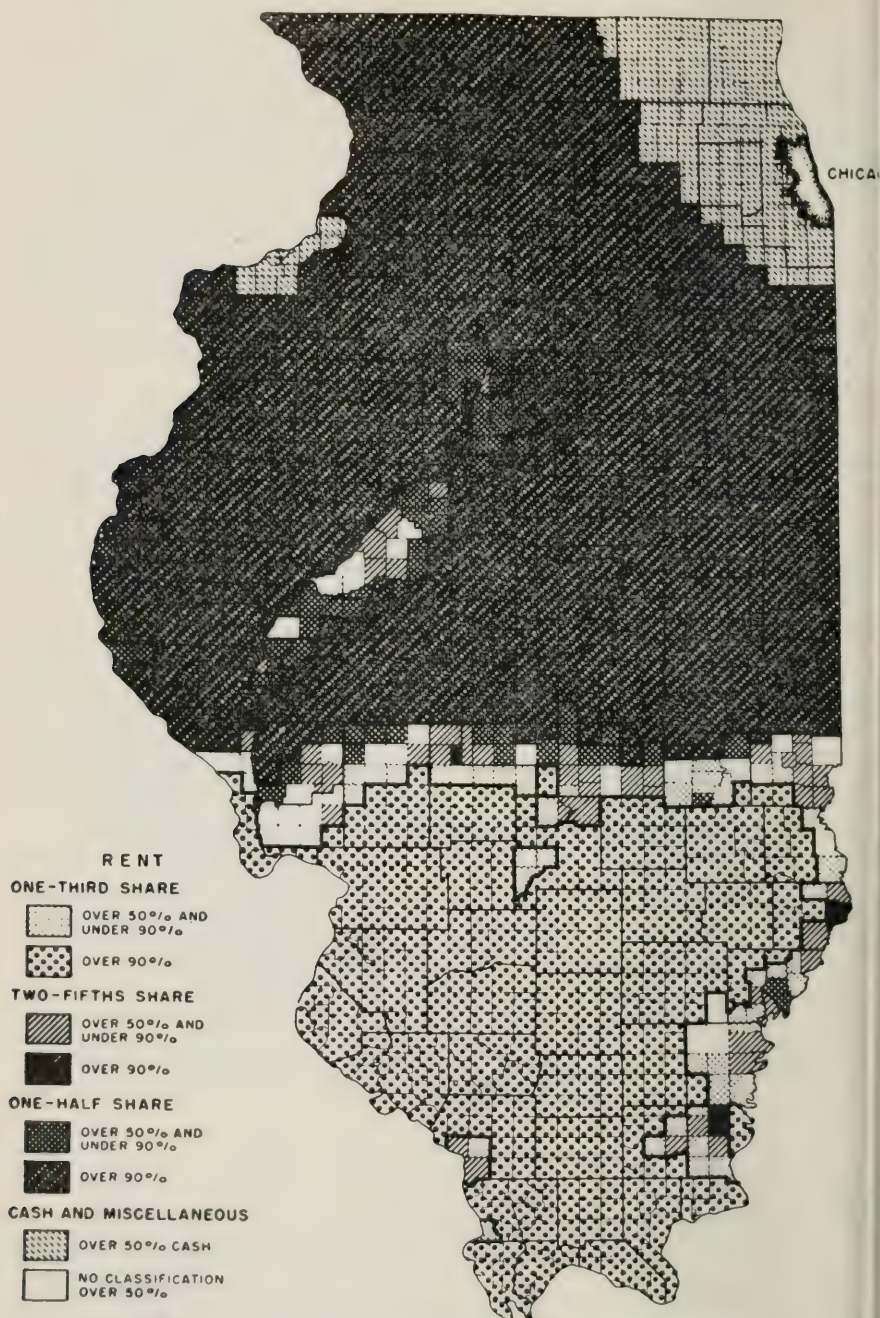
5. *Mid-Illinois transitional mixed-rental-share area.* One-third, two-fifths, and one-half share rents are common in this area, the rent for each farm being determined independently rather than to follow community practice.

6. *St. Louis and mid-southern third-share rent area.* Grain crops are usually rented for one-third share; tenant pays all operating expenses. Crop-share cash is the prevailing lease type, but some tenants pay no cash. Privilege rent for the use of buildings is more common in the western part of this area than in any other group of counties in the state.

7. *Southeastern crop-share area.* Prevailing rental share is one-third; hay is usually shared on a 50-50 basis. Field renting is common in this area.

7A. *Wabash River valley mixed-rental-share area.* Corn is rented mainly for one-third and two-fifths. Wheat is rented for two-fifths and one-half. No cash is paid on the majority of crop-share-rented farms.

7B. *Cairo cotton-cropper area.* Approximately 20 percent of the tenants are croppers, of whom half are colored. Croppers pay one-half share rent for cotton; tenants and renters following mixed farming often pay one-fourth rent where land is not highly productive.



* Based on Summary of Performance records of 1938 A. A. A. cooperators. In most of the variable areas this has given a sample of from 40 to 50 percent of the rented acreage of that crop.

FIG. 3. — SHARE-RENT PAID FOR CORN, ILLINOIS 1938*

The Amount of Rent Paid

In general the amount of rent paid, whether a share of the income or cash rent, depends upon the productivity of the land and the desirability of the farm. As indicated in Figure 3, over 90 percent of all share-rented farms in the northern two-thirds of the state pay half of the grain crop as rent. One-third of the grain crop is the usual rent given in the southern part of the state although hay is divided on a 50-50 basis. Between the two areas there is considerable share rent paid on the basis of two-fifths of the grain crops. This rental is also found in small areas of mixed soil conditions. Even in the area where half of the grain crop is normally given as rent, there are a considerable number of farms where the landlord receives only two-fifths of the small grain including soybeans as rent, but frequently the tenant pays the cost of seed and harvesting when the smaller rental is paid.

In addition, it must be recognized that farms within a community vary widely in their productivity. There is just as much reason for a variation in the rental paid within a community as there is for the wide differences in different parts of the state. It may cost the tenant just as much or more to farm a low producing farm as a good one.

In many cases adjustments are made in other rental practices to keep the lease fair to both parties; for example, many landlords and tenants in southern Illinois share livestock on a 50-50 basis but the landlord owns half of the machinery and equipment and pays other expenses that are not common to other areas in order to equalize the contributions of the two parties.

What Is a Fair Lease?

The fairness of a farm lease or a profit-sharing arrangement depends mainly on whether or not the income from the farm is divided in about the same proportion as the expenses and other contributions of the landlord and tenant where the operations of the farm as a whole are considered. With continually changing price and production relationships, it is not possible to keep a lease in balance every year.

It is accepted generally in leasing farms that the owner furnishes the farm and fixed improvements, while the tenant furnishes the labor and the major part of the equipment. The other items of expense are shared in different ways in different lease agreements. There is need, therefore, of appraising the contributions of the two parties to determine whether the sharing of both the expenses and income provides an equitable arrangement between the parties.

Farm rent paid either in cash or as a share of the produce normally varies from one area to another in a way which is largely the outgrowth of custom, while custom in turn has been influenced by the productivity

of the land and the tenant's normal costs of operating the farm. As the agriculture of an area becomes older, the changes in methods of production, the development of serious problems of soil conservation, changes in types of farming, and changes in technological developments give rise to questions of adjusting the provisions of the lease to provide for a more equitable division of expenses and income between the two parties. Differences in the original productivity of land have been recognized between regions. This is indicated by the differences in the share of produce or the amount each gives as rent in different parts of Illinois and other mid-western states. For example, there are large areas where land is rented for one-fourth, one-third, or one-half of the crop being given as rent to the landlord.

On the other hand, even though the soil of a community may have been similar when the land was developed for farm use, differences in the income from farms within the same community result from the degree of care that has been given over the years to the land and improvements on the land. Under such conditions custom is not a safe guide in developing a lease for a given farm. It may, for example, cost a tenant as much to operate a farm that will not produce more than half as large yields as another farm in the same community. These differences in the productive value of farms in the same community become more marked as an agricultural region becomes older. When it becomes necessary to make more provisions for the improvement or conservation of the soil, many questions arise concerning equitable leases. Also there are frequent questions concerning whether well-improved farm buildings do not justify a higher rental than farms with mediocre buildings.

One method of determining whether a particular farm lease is equitable or not is to estimate the total contributions which both the landlord and the tenant expect to make toward the annual cost of operating the farm in question. If farm records are available from the farm for several years these estimates may be made with considerable accuracy. Caution must be used in placing valuations for various items on a comparable basis. For example, if conservative valuations are used for labor during the war years, equally conservative values should be placed on land and other capital items. If such records are not available for a given farm, data from records of similar farms may serve as a basis for estimating the contribution of the two parties.

Under all forms of leases the landlord furnishes the farm and makes all the fixed improvements. His major contribution is represented by a fair interest return on a conservative valuation of the property; hence, judgment must be exercised in estimating both the value of the property and the rate of interest to be expected on that valuation. Likewise, the

operator of the farm furnishes his own labor and management and the labor of members of his family on which a valuation should be placed. Such items may be difficult to estimate although there are many items of farm operating expenses that can be quite accurately estimated for a given farm. Such estimates also serve to set forth the importance of unusual provisions which may be written into farm leases.

There are two ways of securing an equitable farm lease. The first assumes a fixed division of income between landlord and tenant and then proceeds to adjust the division of expenses and other contributions in order that they may be in the same proportion as the division of income. The second involves a listing of a fair evaluation of the contribution of each party and then suggests that income be divided on the basis of the relative contribution of each. Either approach to the problem is based on the same assumption; that is, that the landlord and the tenant should share the income of the farm in the same proportion as they contribute to the expense of its operation.

A process for evaluating the contributions of the landlord and tenant for a given farm is illustrated by the following balance sheet, made up in accordance with the terms of a typical crop and livestock-share lease.

In the following example the value of the farmland is given as \$42,000 and the annual contribution of the landlord in furnishing the farm is estimated at 4 percent of that value. The basis used in determining the rate of interest is the prevailing rate of interest paid on good farm mortgages. The house which is evaluated with the other buildings is a much better house than would be found on the average farm and represents a definite investment from the standpoint of the landlord. Tenants who are successful farmers will frequently be willing to pay something additional for an excellent home. The contribution of the house and other buildings is valued at four percent the same as the land, although in expenses an estimate is made to cover the depreciation and upkeep of the buildings. The contribution of operating capital, including livestock, machinery, and feed, valued conservatively is estimated at five percent. The interest on money borrowed on operating capital usually costs about one percent more than the rate paid on good farm mortgages.

In this illustration it is assumed that the owner of the farm employs a hired manager to look after the farm at a cost of \$200 a year, which is a cost of operation from the standpoint of the farm owner. The value of the operator's own labor and management and the value of the unpaid family labor is difficult to estimate accurately although it can be based on the estimated value of the labor which would be hired if no family labor were available. The operator's own labor might, for example, be valued at \$100 a month plus \$200 as his contribution to management, giving a total of \$1,400.

METHODS OF COMPARING CONTRIBUTIONS OF TENANT AND LANDLORD UNDER A CROP
AND LIVESTOCK SHARE LEASE FOR A 220-ACRE FARM

Investment items	Value	Percent interest	Expenses		
			Total	Tenant	Landlord
1. Land.....	\$42,000	4	\$1,680		\$1,680
2. Buildings.....	12,690	4	508		508
3. Work animals.....	300	5	15	\$ 15	
4. Other livestock.....	1,890	5	96	48	48
5. Machinery and equipment.....	3,734	5	187	187	
6. Feed for livestock.....	960	5	48	24	24
Total interest charges.....			\$2,534	\$274	\$2,260
<i>Other expenses</i>					
7. Management.....			\$ 200		\$ 200
8. Operator's labor and management.....			1,400	\$1,400	
9. Unpaid family labor.....			600	600	
10. Ordinary hired labor.....			300	300	
11. Cash cost of board.....			100	100	
12. Purchased feed for productive livestock.....			152	76	76
13. Depreciation on work animals.....			20	20	
14. Machinery and equipment depreciation and repairs..			810	810	100
15. Building depreciation and repairs.....			600		600
16. Skilled labor (not furnished by tenant).....					
17. Fence repairs and depreciation.....			80		80
18. Machine work hired.....			190	50	50
19. Livestock expense.....			152	90	62
20. Seeds and twine.....			58	29	29
21. Limestone and rock phosphate.....			200		200
22. Commercial fertilizer.....			200	100	100
23. Tractor fuel.....			300	300	
24. Insurance on buildings.....			60		60
25. Insurance on livestock.....			50	30	20
26. Taxes on real estate.....			365		365
27. Taxes on personal property.....			60	40	20
Total farm expenses.....			\$8,241	\$4,319	\$4,022

In this illustration it is recognized that in addition to the wages estimated for the operator and members of his family, that the family receives certain produce which is contributed by the farm to their living and use of the house. The question might be raised as to whether or not the value of such produce and house rent should be estimated and added to the farm income. If this were done, the value of the labor of the operator and members of the family would presumably be increased by a similar amount. It makes little difference which of the two methods is followed.

The cost of hired labor and board may be quite closely estimated. The other items of expense may be secured from records of the farm in question or estimated from records on similar farms.

In the illustration given above, it is shown that the tenant's contribution is \$297 more than the landlord's. While a difference in the valuation of some of the items in the illustration might be changed to balance the contributions of the two parties, it may be assumed for the sake of our illustration that the figures are fairly chosen. The tenant might be willing to pay more than 50 percent of the expenses because of the better house he has for his family to live in. On the other hand, the landlord might reason that he gets a better tenant because of the better house and will get paid for this additional investment by the larger earnings from the farm. Taking the latter point of view, it might be advisable to try to balance the contributions of the two parties. If, for example, the landowner had made a payment toward the cost of the tractor fuel of approximately one-half the cost thus taking away \$150 from the contribution of the tenant and adding it to the landlord's total, it would have practically balanced the contributions of the two parties.

In the foregoing example, on the basis of the estimates made of the contributions of the two parties, only a minor adjustment in the contributions is required to make a 50-50 division of the income an equitable arrangement for this farm. If, on the other hand, the farm used in the illustration had been less desirable from the standpoint of both land and buildings, the landowner's contribution might have been estimated at \$1,000 less in terms of interest on the valuation of the "land" and "buildings." This would have given the total contributions of the tenant as \$4,319 and the landowner \$3,022, or expressed in percentages, as approximately 60 percent and 40 percent. This indicates that a $\frac{3}{5}$ to the tenant and $\frac{2}{5}$ to the landlord division of the income would have been more equitable since a change in the shares of the income would call for only minor changes in the sharing of contributions, including ownership in livestock, feed, and some minor expenses.

These illustrations show that this method of analysis may be used for either of two purposes: (1) to make adjustments in the contributions of the two parties to make the specified sharing of income equitable or (2) to adjust the sharing of the income to fit the contributions. *It should be made clear that this method of attempting to balance the contributions of the two parties or changing the sharing of the income is really no better than the judgment of the people who do the evaluating.* It is, however, an excellent means of testing out leases to see whether they give an approximately equitable adjustment of expenses between the two parties in accordance with the share they receive of the total farm income.

The principle of sharing income in proportion to sharing expenses (including the value of all contributions) between landlord and tenant is basic to a fair lease. It is easy to understand but difficult to apply because many farms lack long-time records and comparable values are hard to estimate.

Some Major Problems in Dividing Expenses

Fertilizer cost. The cost of purchased fertilizer is an item which may be subject to considerable discussion from the standpoint of how much of the cost should be borne by the landowner and how much by the tenant. It might be stated that if soil fertility is badly depleted when the tenant moves to the farm and the farm is renting on a basis comparable to more productive farms that the landlord might well assume the responsibility for the purchase of "long-time" fertilizer such as limestone or rock phosphate to bring the farm up to a higher level of production. At the other extreme, if a farm is highly productive when a tenant moves to it, it may be reasoned that the tenant should contribute his share toward maintaining its productivity, as he is participating in the advantages of a highly productive farm compared with many others in the same community.

There is no one arrangement for "long-time" fertilizers, such as limestone and rock phosphate, that applies equally well to all farms because:

1. Farms vary in productivity and the landlord should pay more of the cost on a poor farm than on a productive one if the division of crops is the same.

2. Some farms have had one or more applications of limestone or rock phosphate from which the present tenant has received benefits. In such cases, the tenant may well share the cost of subsequent applications, with proper provision made in the lease for reimbursement to the tenant for the unexhausted portion when he moves away from the farm.

3. The division of governmental payments makes a difference. The landlord may prefer to pay the total cost and receive all the practice payments for application of limestone and rock phosphate.

4. The facilities for getting the materials delivered and spread need to be considered. For example, in some communities limestone is trucked directly from the quarry to the farm and spread, the entire cost appearing in one bill, while in other communities the limestone is shipped in by rail and the trucking and the spreading are distinct operations. Furthermore, the tenant may have trucking and spreading facilities on the farm and assume that share of the cost.

5. Leasing arrangements in the area are strong influences that need to be considered. Some of them, however, may be based on tradition and need to be changed.

6. There may be other offsetting agreements in the lease. For example, in return for an excessive amount of repair work on buildings and fences to be done by the tenant, the landlord may agree to pay for all of the limestone and rock phosphate. On the other hand, because of low cash rent for hay and pasture, from which the tenant may gain the advantage under cash leases or grain-share cash leases, the landlord and tenant may agree to share the costs.

Normally the cost of "quick" fertilizers from which the major value is realized in the same year they are applied is shared by the landlord and tenant in proportion to the sharing of crops. The cost of spreading limestone and fertilizers has been handled in various ways, sometimes being shared by the landlord and tenant, while in other instances either of the two parties may bear the expense.¹

Since many farm leases do not make adequate provision for arrangements between landlord and tenant for soil conservation practices a supplemental agreement or "rider" is often needed. Such a form is being prepared. When it is ready, it may be procured from your county farm adviser or direct from the University of Illinois.

Tractor fuel cost. The cost of tractor fuel may be questioned as a charge against a tenant under a livestock lease. In a livestock lease if the farm work were done by horses they would probably be fed from undivided grain. The landlord would be contributing half of the cost of feed although the tenant would furnish the horses. When the work is done almost entirely with tractors, it may be reasoned that it is fair for the landlord to make some contribution to offset the saving in the cost of feed for work horses. Many landowners do not like to be involved in securing an accounting of the cost of fuel. Some are making a contribution of 50 cents to \$1 an acre for cropland to help pay for the cost of tractor fuel. Such contribution is based on the net cost of about 10 gallons of tractor fuel per crop acre. Other landlords are making larger contributions to include part of the cost of truck fuel and the farm share of electricity. The amount of the contribution should naturally depend somewhat upon the size and productivity of the farm, kinds and numbers of livestock, mechanization of the farm, and other factors. On a heavy livestock-producing farm, where power is used for grinding feed and many other purposes, there may be a justification for the landlord paying a larger amount toward the cost of fuel. In some instances landlords make concessions in other expenses to offset part of the tenant's power costs.

Adjustments for large labor requirements. In the operation of a dairy or poultry farm a very large amount of labor is required compared with most types of farming. Because of the labor involved, the income from dairy and poultry products may be divided on a basis of 60-40 or 55-45 respectively to the tenant and the landlord, or in other instances the landlord may furnish more than half of the dairy herd or poultry flock, or make some other major contribution to equalize the contributions of the two parties.

It is seldom advisable for landlords and tenants to share hired labor expenses except where close blood relationships exist as with father and

¹ See Illinois mimeographed publication AE 2415, "Charging-off Fertilizer Costs."

son or where the ability of the tenant to supervise hired labor has been proved.

Combining cost. The practice of sharing combining cost, which is prevalent over the state, is an outgrowth of sharing threshing cost. One should recognize the fact, however, that the two methods of harvesting are not strictly comparable. The combine replaces much man labor which was formerly contributed by the tenant. On the other hand, the combine leaves the straw in the field where it is well distributed for fertility maintenance, but it may involve an additional expense to the landlord for picking up straw if a livestock-share lease is used.

The most common practice over the state is for the landlord and tenant to share in the combining cost as they share the harvested crops. Variations from this plan follow:

1. The landlord pays the going rate per bushel for threshing. This practice is most common where there is a great deal of threshing done.

2. The landlord pays 75 cents to \$1.50 an acre for each acre combined. This practice is most common in east-central Illinois and on farms where the tenant owns the combine. Thus, the landlord is not paying the tenant a profit due to high custom rates.

3. The landlord pays none of the combining cost but the tenant may get a larger than normal percent of the crop. For example, at the south edge of the cash-grain area it is common practice for the landlord to furnish none of the seed oats and to pay none of the combining cost on the crop and to receive two-fifths rather than one-half of the crop harvested. The same practice also applies to soybeans on individual farms in various areas of the state.

4. The landlord may pay none of the combining costs but make other concessions like charging low cash rent for hay and pasture and providing a superior residence for the tenant's family.

Adjusting cash rent. The change in cash rent for hay and pasture especially on crop-share cash lease farms frequently fails to keep pace with changing prices for farm products. Some landlords and tenants agree to base the cash rent per acre on the market value of a definite amount of one or more of the principal products produced on the farm, for example, corn, milk, etc. In such case, the parties to the lease should agree on the amount of the product or products that would have been required to pay the cash rent per acre for a fairly normal period, for example, 1935-39. If for this period the cash rent were \$6 an acre and No. 3 corn (the agreed upon product) were valued at 60 cents a bushel at harvest time, the quantity would be 10 bushels of corn. Then to this quantity the landlord and tenant may apply the price for a given date, such as December 1, to get the cash rent per acre. Average prices for the state are published regularly in *Illinois Farm Economics*.

In some cases the cash rent is kept low in return for other contributions made by the tenant, such as paying for part of the clover and grass seed, doing more than the normal amount of work on farm improvements and doing a superior job of farming. The cash rent may also be low because the landlord gets a part or all of the seed crop harvested, or because the hay crop is divided and the cash rent applies only to a small acreage of pasture.

In any event the productivity of the land should be considered in agreeing on a fair cash rent because the production of hay and pasture per acre varies just as much as the production of other crops.

These instances serve as examples of some of the problems involved in making farm leases. They indicate the need of considering the lease as a whole as well as its individual parts; also the need for definite written agreements. Leasing arrangements should be the result of forethought rather than "after-thought."

Advantages of a Written Lease

Altho a written lease is advantageous to both landlord and tenant, in many communities verbal leases are more common than written leases. A survey of 438 rented farms in Illinois in 1946 showed that only 243 or 55 percent were operated under written leases. A larger proportion of the written leases were between landlords and tenants who were unrelated, altho 35 percent of the unrelated tenants were operating under verbal leases. Written leases were more common on livestock-share farms than on crop-share farms.

Without a written lease or other proof as to the form of agreement, decisions for settlement in the event of a dispute must be based upon the present custom of the community. If no "customary practice" can be determined, then settlement is based upon common law, or interpretations which the courts have rendered; and common law, having grown out of long tradition and custom, may have little application to farming practice in a given community. Furthermore, the fact that farm practices change makes it undesirable to settle disputes by reference to precedents whether of the community or common law. When a clearly established precedent does not exist, new court decisions must be rendered.

A written lease has these eight advantages:

1. It provides for the more important leasing practices and in case of a dispute will prevent the application of interpretations growing out of common law, custom, or court decisions, which are unadapted to the farm.
2. It serves as a memorandum to which either landlord or tenant may refer in case of doubt as to the terms of their agreement, and therefore helps prevent disputes especially when the lease is complete, equitable, and well-understood.

3. It affords a basis for changing minor provisions when conditions arise which make adjustments desirable.

4. It protects not only the original parties, but their heirs and assigns in case either party should die.

5. It gives added assurance that both parties will consider and understand all phases of the contract from the outset. Thus disagreements may be avoided later on.

6. When details of farm operation are specified in the lease, the lease serves as a history of the operation of the farm.

7. It makes the term of rental definite.

8. It offers an opportunity to provide for a reasonable period of notice to terminate the lease.

Suitable forms for making out written contracts are provided in the following publications: "Crop-Share Cash Farm Lease" (for crop-share or cash arrangements or combination of the two), "Livestock Share Farm Lease," and Circular 587 "Father-Son Farm Business Agreements" (also for manager-operator arrangements). These publications may be procured direct from your county farm adviser or by writing to the University of Illinois.

General Suggestions on Leasing Farms

Choosing a tenant. Some well-informed people consider that three-fourths of a landowner's problems are solved simply by renting to a suitable tenant who fits the farm. There is no exact formula to enable one to select a good tenant. The following characteristics, however, are possessed by the best tenants, and experience indicates that men who possess these traits are likely to be good tenants.

1. Honesty.

2. Willingness to cooperate in a successful farm management program.

3. Thoro knowledge of the proper care of all crop and livestock enterprises to be included in the farm business.

4. Ability, health, energy, and initiative to do good work in proper season.

5. Sufficient equipment and financial backing to operate the farm efficiently.

6. A favorable attitude toward the adoption of new methods and practices as rapidly as their merit is established.

7. Interest in soil conservation.

8. Interest in preventing the introduction and spread of weeds.

9. Pride and interest in farm and community life.

10. Willingness to make minor repairs to buildings and farm.

11. Neat about farm and person.

In addition to these traits of the tenant himself, it is essential that his wife be interested in farm life.

Choosing a landlord. From the tenant's standpoint, it is essential that the landlord possess certain qualifications that will enable dealings with him to be satisfactory. Some of these are:

1. Honesty.
2. Willingness to cooperate.
3. Understanding of farm problems.
4. Interest in practical farming.
5. Sufficient credit to provide the improvements needed for a good system of farming.
6. Good judgment respecting the relative need for various farm improvements and the extent to which it is economical to invest in improvements.
7. Open-mindedness regarding the accepting of new practices.
8. Pride in good farming.
9. Pride in a good community.

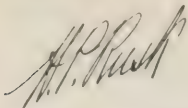
Choosing a farm. Advice on choosing a farm applies equally well to prospective landowners who are choosing farms for purchase and to tenants seeking desirable farms for rent. Both should be interested in getting a productive farm having adequate buildings and other improvements. Both tenants and purchasers too frequently accept farms without careful inspection of the farm or community. Attention should be given particularly to type of soil, drainage, tendencies to erosion, proportion of untillable to tillable land, and adaptation of the land and buildings to the type of farming to be followed. Moreover, to be desirable a farm should be situated in a community having good churches, good schools, and desirable neighbors. All these are essential, in a real sense, to a good level of rural living on a permanent basis.

H. C. M. CASE and J. B. CUNNINGHAM

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935...
1931.....	73	65	77	110	84	77	71	95	74	75
1932.....	65	48	52	96	60	57	60	73	51	58
1933.....	66	51	56	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	103	101	90	86	85	86	80	87
1936.....	81	81	107	100	104	109	110	101	93	103
1937.....	86	86	120	104	108	116	112	107	111	113
1938.....	79	69	87	98	99	107	109	90	85	89
1939.....	77	65	81	97	99	107	110	106	100	109
1940.....	78	68	86	98	107	114	116	115	114	125
1941.....	87	82	109	103	142	146	140	138	168	162
1942.....	99	105	140	117	197	200	169	171	245	199
1943.....	103	123	166	127	251	243	191	209	330	239
1944.....	104	124	168	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1946 Mar....	109	133	175	140	270	246	176	230	233	168
Apr.....	110	135	177	141	262	232	165	233	249	164
May.....	111	138	186	145	284	262	181	234	248	159
June.....	113	140	186	147	271	182	124	234	257	171
July.....	125	157	231	155	335	284	183	240	261	173
Aug.....	129	161	235	159	313	245	154	243	278	177
Sept.....	124	154	216	156	249	178	114	243	284	180
Oct.....	131	163	256	162	348	522	322	244	286	181
Nov.....	137	169	241	166	367	539	325	247	292	182
Dec.....	140	168	236	166	363	374	225	250	300	182
1947 Jan....	142	165	229	168	366	363	216	251	300	188
Feb.....	145	170	235	173	352	346	200	253	...	189
Mar....	150	182	258	177	342 ¹¹	...	...	...	...	189

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			April 1946	Current months		
	1935-39	1945	1946		Feb.	March	April
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.10	\$1.22	\$1.53	1.67
Oats, bu.....	.31	.68	.77	.77	.79	.89	.88
Wheat, bu.....	.86	1.58	1.83	1.66	2.16	2.55	2.54
Barley, bu.....	.62	1.09	1.29	1.17	1.45	1.55	1.55
Soybeans, bu.....	.90	2.09	2.30	2.10	3.06	3.85	3.65
Hogs, cwt.....	8.52	14.25	17.53	14.40	24.60	26.90	24.10
Beef cattle, cwt.....	7.88	13.22	16.41	14.50	18.00	19.30	18.90
Lambs, cwt.....	8.36	13.77	16.38	15.20	20.30	21.70	19.70
Milk cows, head.....	58.00	125.50	147.00	139.00	165.00	170.00	170.00
Veal calves, cwt.....	8.66	13.99	16.78	15.20	23.60	23.00	20.90
Sheep, cwt.....	3.58	6.38	6.99	6.90	7.10	7.40	7.30
Butterfat, lb.....	.27	.48	.63	.48	.66	.71	.64
Milk, cwt.....	1.68	2.95	3.80	3.08	4.05	4.00	3.95
Eggs, doz.....	.19	.35	.34	.28	.34	.36	.38
Chickens, lb.....	.15	.25	.27	.24	.27	.28	.28
Wool, lb.....	.25	.43	.43	.43	.43	.43	.42
Apples, bu.....	1.08	2.99	3.37	4.30	3.00	3.00	3.50
Hay, ton.....	9.39	17.72	15.55	15.00	16.50	16.00	16.50
Potatoes, bu.....	.91	2.06	1.70	1.70	1.60	1.70	1.65

¹⁻¹² For sources of data in tables see previous page.

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EUROPE'S FOOD PROBLEM

As long as American agriculture produces a surplus of food, the welfare of American farmers depends upon the export of some agricultural products. The European food needs offer a basis for the export of these surplus farm products. Changes in the destination of surplus food supplies produced in Europe compared to prewar may have a permanent effect upon the demand for food products from the United States. The prospective demand, however, depends to a considerable extent upon whether the United States makes it possible for other countries to trade with us.

Before the last war Eastern Europe was referred to as the bread basket of Europe. From 6 to 8 million tons of foodstuffs were shipped from Poland, Czechoslovakia, Hungary, Rumania and Yugoslavia. The Danube Basin produced a large part of these supplies. The surplus production of this area played an important part in the economic organization of Europe. Germany, in particular, was producing manufactured products which it exchanged for food from eastern European countries. The old trade arrangements in Europe have been seriously disrupted.

Drouth and disorganized agriculture have reduced production in much of Europe, including Russia. Much surplus food which might have reached western Europe under prewar trade conditions has been diverted to Russian use.

Until this situation is changed, Western Europe is facing a greatly reduced food supply, compared to prewar. In some instances this situation is made more serious by the disturbances in the dominion and colonial connections of France, Holland and Great Britain, in particular. Asia as a whole has been short of food. The USSR, while believed to be in a better condition than the rest of Asia, has had a meager diet.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

Prior to the first World War in most of Eastern Europe, and continuing in much of Eastern Europe until the second World War, most of the surplus food of the area was sold from large farms or estates. Situated around these large land holdings were the small holdings of poor peasants who frequently worked on the large holdings. These peasants earned a poor living from their own land plus their low wages. The large holdings on which they worked provided most of the surplus food that reached large cities or was shipped out of the country. As the large holdings were broken up it became difficult to collect food for the cities or to export agricultural products. This no doubt was a reason for organizing the collective farms of Russia. They afforded a method of organization to get food for city consumption. In other countries, as the large estates were divided during the recent war, the poor peasants lived better by using more of the food they were able to grow as the result of the redistribution of large estates among peasants. Food, however, has not been assembled to sell in old trade channels. One reason is that there are few things available for purchase in many areas and, lacking faith in existing money, there is a tendency to consume more of the products of farms at home.

Germany, Austria, Denmark, Holland and Belgium, in particular, imported considerable grain from the agricultural countries of Eastern Europe prior to the recent war. This grain was processed and the by-products or the entire grain of feed grains were fed to livestock. The failure to obtain normal feed supplies in the above-named countries has greatly reduced livestock production. This has brought a reduced level of diet in these areas and hardship to many farmers who were buying grain to support their livestock enterprises. They are unable to produce sufficient quantities of grain on their small holdings.

Trade in wheat. The shift in the trade of the Danube Basin is illustrated by the net trade in wheat, the principal grain entering inter-

TABLE 1. — IMPORTS OF WHEAT AND WHEAT FLOUR INTO EUROPE^a
(Expressed as wheat equivalent)
(000 metric tons)

Region	1934-38 net trade	1945-46 consumption year net imports ^b
Northern and Western Europe.....	3,440	4,973
Austria and Germany.....	1,190	2,050
Spain, Portugal, Italy and Greece.....	1,100	3,138
Eastern and Southeastern Europe (excl. USSR) ^c	-2,100	1,457
Total.....	3,630	11,618

^a Present frontiers. Data in this and later tables are from the "Food and Agricultural Organization of the United Nations."

^b Actual trade figures September 1, 1945-August 31, 1946, used where possible. Otherwise estimates for period July 1, 1945-June 30, 1946. Imports probably include small quantities of other grains.

^c Minus figure indicates exports.

NOTE: One metric ton is equal to 36.7 bushels of wheat or rye.

national trade. Table 1 shows that not only has Southeast Europe ceased to be an export zone and become a net importer since the war, but that imports for all Europe outside the Soviet Union have increased from 3.6 to 11.6 million metric tons per year.

Food production since the war. We have discussed some of the shifts of food trade in Europe. However, the picture is not complete without pointing out the shortage of food production in Europe as a whole. This shortage creates a serious problem, since world food supplies are insufficient to meet the demand.

Wheat and rye are the principal grains used in Europe for human consumption. The factors which have limited production of these crops during and after World War II have undoubtedly affected all crop production to some extent. Therefore, the situation with regard to the supply of these grains may be accepted as being rather symptomatic of the entire food supply problem.

It is a well-known fact that due to disturbances resulting from the war, acreages of these crops have been below prewar. Shortage of work stock, shortage of fuel for tractors, mined areas, flooded areas, dislocation of whole populations, redistribution of land to peasants, shortages of seeds, unstable economic and political conditions and fixed prices for products are factors discouraging or preventing the sowing of normal acreages of cereals. Some idea of the magnitude of the reduction can be gathered from the following table which applies to wheat only.

TABLE 2.—WHEAT AREAS, CONTINENTAL EUROPE
PREWAR^a AND POSTWAR^b
(000 acres)

Region	1935-38	1945	1946
Northern and Western Europe.....	15,071	11,730	12,395
Austria and Germany.....	4,902	3,798	4,440
Spain, Portugal, Italy and Greece.....	27,161	22,743	23,991
Eastern and Southeastern Europe (excl. USSR).....	24,619	16,605	22,365
Total Continental Europe.....	71,753	54,876	63,191

^a Prewar figures adjusted to present territories of countries.

^b Preliminary.

Most of the reduction in Northwest Europe occurred in France, Belgium, and the Netherlands. Finland and most neutral countries have increased their acreages.

The quantity of farm crops produced is not entirely dependent on area sown by any means. Since the war, an acute shortage of commercial fertilizers, a shortage and high cost of power causing improper tillage, maldistribution of labor supply and a shortage of insecticides and other supplies have tended to reduce the yields in most countries. And, as

always, weather conditions have played a paramount part in determining yield. In 1945, for example, a severe drouth reduced crop yields in Southern and Southeastern Europe. The wheat yield was only 13.5 bushels per acre for all Europe in 1945 compared with 20.8 bushels in the prewar period, 1935-38. In 1946 the yield increased to 17.8 bushels per acre, still short of the prewar level.

Total production of wheat and rye before the war and in 1945 and 1946 are shown in Table 3.

TABLE 3. — PRODUCTION OF WHEAT AND RYE,^a CONTINENTAL EUROPE^b
(000 metric tons)

Region	Average 1935-38	1945	1946 ^c
Northern and Western Europe.....	13,071	7,678	10,896
Austria and Germany.....	10,275	5,747	6,384
Spain, Portugal, Italy and Greece.....	13,899	6,997	11,599
Eastern and Southeastern Europe (excl. USSR).....	22,390	10,300	12,835
Total Continental Europe.....	59,635	30,722	41,714

^a Includes other grains used as food in Belgium, Luxemburg and Switzerland.

^b Prewar figures adjusted to present territories of countries.

^c Official and unofficial estimates.

From the foregoing data we see that production of food grains (and all crops by implication) has not yet returned to prewar levels due to both area and yield factors. The supply of food for city populations, however, has been reduced even more than these figures indicate due to the difficulty of collecting grain from the peasants and farmers.

Without production goods, including farm machinery, fertilizers and insecticides or consumption goods being available for purchase there has not been much incentive for farmers to restrict their diets in order to increase the volume of farm products offered for sale. On the small farms with large local populations there has been a tendency for farmers to consume a larger proportion of their products than normally. This does not mean an extravagant use of food; it reflects a restricted diet under normal conditions.

In most countries the bread rationing system is based on crop collection from farmers plus limited imports to feed the city populations. Under a compulsory collection system at fixed prices, peasants are tempted to sell their small surpluses on the "black market" at high prices. Thus, the supplies for legal distribution through the ration systems are meager in most countries, and dependent to a large degree upon imports. From the standpoint of preventing starvation it is necessary to maintain the rations since the "black market" grain is purchased by well-to-do people, and the mass of working (and unemployed) people are almost entirely dependent upon legal bread distribution at moderate or low cost. This accentuates

the pressure from the governments concerned to import all the grain they can obtain from the exporting countries outside Europe.

Conclusions and Outlook

Food production in Europe as a whole has been reduced due to the effects of World War II and its aftermath. In addition, the surplus grain and meat production of the Danube Basin is no longer available in large amounts for Western Europe due to the breaking-up of large estates and the diversion of local surpluses to other markets. Europe received a net import of some 11,600,000 metric tons of wheat during the first postwar year. This represented an increase in imports of some 300 million bushels of wheat compared to prewar years. However, this was little more than half of the 21,500,000 metric tons that it was short of prewar supply. Total domestic production in Europe, except the USSR, plus wheat and rye imports totalled about 63 million metric tons before the war.

The net shortage of about 10 million tons might not seem serious, but must be considered with the fact that all other foods are scarce, especially fats, milk, sugar, rice and, in many areas, meats. This places a premium on grains for providing bread, truly the "staff of life" in Europe.

Although 1946 crop production was better than 1945, the 1946-47 winter has proved trying for most European countries, including those dependent upon UNRRA for imports and those politically unsettled. Shipments of grain to Europe for 1946-47 will amount to about two-thirds of the 1945-46 imports. In both years available supplies, home-grown and imported, have not been sufficient to prevent the diet from falling below the recognized standard of 2,000 calories per day in many local areas of Europe, especially in ex-enemy countries and parts of Eastern Europe. This is in comparison with an average diet of about 3,200 calories in the United States, a diet which is much richer in fats, milk, meats and sugar.

The outlook for the grain supply in Europe during 1947-48 is not good. Current reports indicate that winterkilling may reduce the 1947 bread-grain harvest below that of 1946, especially in England, France, Belgium and the Netherlands. This would require a heavy importation of wheat again during the winter of 1947-48 despite the probable increased production of other foods.

The future European market for United States grain is dependent on many factors in different countries. France hopes to resume normal wheat production in 1948, which, with imports from her colonies, will make her self-sufficient. The Netherlands and Denmark could produce sufficient grain for food if they would not maintain a livestock export industry, which is largely dependent on the British market. British grain imports, which depend heavily on her exchange position, are currently running much below prewar.

Germany has lost much good grain land and has a more concentrated population than before the war. The need for food-grains can be met only if Allied policy permits Germany to gain sufficient economic recovery and an export trade to pay for imports. Germany must import a considerable quantity of grain to maintain even a minimum diet.

Italy will undoubtedly need to import one to two million tons of wheat annually during the next few years if foreign exchange becomes available. If she does not, she will be forced to resume her previously attempted policy of self-sufficiency in grain with its accompanying abuses of good land-use practices and its high cost.

In Poland the resettlement and rehabilitation of large areas is likely to prevent surplus grain production for several years. In the Danube Basin it is unlikely that any large surplus of grain will again be available due to the break-up of the large estates as discussed above.

The future European wheat and grain market, then, is largely dependent on economic recovery in Europe and, insofar as the United States is concerned, the dollar exchange available to European countries, either temporarily, through loans, or permanently, through increased TWO-WAY trade. A bankrupt world cannot pay cash for many imports; international trade must be two-way trade in the main. Such trade is the only way the American farmer will be assured a part of the European food market. The demand for food in Europe is great but can be effective only when those countries have a means of paying for the necessary imports. This is a strong argument for improving international trade provisions. We must put ourselves in such a position that other nations can trade with us. The American farmers can produce considerable surplus food, which if sold abroad will make him a larger buyer of goods from our own industries.

H. C. M. CASE and H. L. KOELLER

DEATH LOSSES OF LIVESTOCK ON ILLINOIS FARMS

Death losses take a heavy toll on incomes from livestock on Illinois farms. Losses due to disease among animals that do not die are also severe. Sanitation is the most effective single preventative of disease and death losses among all livestock, especially with hogs and poultry.

Death takes about two percent both of the weight put on feeder cattle in Illinois feedlots and of the weight of hogs produced after weaning. Death losses caused by disease or accident take about five percent of the weight of cattle produced in beef cow herds; eight to ten percent of that in dairy herds; 12 to 20 percent of the weight of sheep produced in native flocks; and 10 to 15 percent of the gain in flocks of feeder sheep (Table 1).

TABLE 1. — DEATH LOSSES OF LIVESTOCK ON ILLINOIS FARM BUREAU FARM MANAGEMENT SERVICE FARMS

Kind of livestock, area, and years	Number of farms	Total weight produced	Death loss	Percent of loss
		lb.	lb.	perct.
<i>Feeder cattle</i>				
North central—1940 to 1942.....	26	34,663	919	2.7
West central—1942 to 1944.....	57	32,066	560	1.7
Northeast—1942 to 1944.....	32	48,074	623	1.3
Northern—1943 to 1945.....	64	29,471	484	1.6
Northwest—1943 to 1945.....	45	19,206	349	1.8
Average of five areas.....	224 ^a	32,696	587	1.8
<i>Beef cow herds</i>				
North central—1940 to 1942.....	13	13,680	716	5.2
West central—1942 to 1944.....	43	14,268	745	5.2
Northeast—1942 to 1944.....	19	15,166	819	5.4
Northern—1943 to 1945.....	13	14,872	792	5.3
Average of four areas.....	88 ^a	14,496	768	5.3
<i>Dairy herds</i>				
North central—1940 to 1942.....	60	6,087	376	6.2
West central—1942 to 1944.....	48	5,960	508	8.5
Northeast—1942 to 1944.....	99	9,187	750	8.2
Northern—1943 to 1945.....	73	6,865	697	10.2
Northwest—1943 to 1945.....	113	8,346	791	9.5
Average of five areas.....	393 ^a	7,289	624	8.6
<i>Native flocks of sheep</i>				
North central—1940 to 1942.....	24	3,404	389	11.4
West central—1942 to 1944.....	37	2,676	485	18.1
Northeast—1942 to 1944.....	18	1,189	290	24.4
Northern—1943 to 1945.....	27	2,712	398	14.7
Northwest—1943 to 1945.....	30	2,022	333	16.5
Average of five areas.....	136 ^a	2,401	379	15.8
<i>Feeder sheep</i>				
North central—1940 to 1942.....	15	10,772	1,064	9.9
West central—1942 to 1944.....	14	7,333	934	12.7
Northeast—1942 to 1944.....	5	5,928	911	15.4
Northern—1943 to 1945.....	11	6,348	1,002	15.8
Northwest—1943 to 1945.....	3	4,258	477	11.2
Average of five areas.....	48 ^a	6,928	878	12.7
<i>Hogs</i>				
North central—1940 to 1942.....	169	35,521	681 ^b	1.9
West central—1942 to 1944.....	194	57,306	1,377	2.4
Northeast—1942 to 1944.....	108	24,442	654	2.7
Northern—1943 to 1945.....	163	56,422	1,184	2.1
Northwest—1943 to 1945.....	160	30,836	611	2.0
Average of five areas.....	794 ^a	40,905	901	2.2

^a Total in all areas.^b Death loss after weaning.

The above losses were the averages suffered by cooperators in the five northern areas of the Illinois Farm Bureau Farm Management Service, which include all counties from McLean, Tazewell, Fulton, and McDonough counties north to the Wisconsin line. All records were obtained during the six years of 1940 to 1945 and each record used was an average of three years. No study of the causes of death losses was made.

Hog death losses. The annual death losses after weaning varied from none to about 11 percent of the weight produced on 214 record-keeping farms of west central Illinois during the three years of 1943 to 1945. The value of the annual death losses figured at average selling prices ranged from \$56 a farm on 33 farms where there was less than one percent loss to \$458 a farm on 14 farms where losses of six percent or

TABLE 2. — DEATH LOSSES FROM HOGS AS RELATED TO RETURNS AND FEED REQUIREMENTS. FARM BUREAU FARM MANAGEMENT SERVICE FARMS; WEST CENTRAL ILLINOIS, 1943 to 1945

Item	Death loss—percent of total weight produced					
	0 to .9	1.0 to 1.9	2.0 to 2.9	3.0 to 3.9	4.0 to 5.9	6.0 or more
Number of records.....	33	71	44	28	24	14
Total annual production per farm— pounds.....	60,634	61,834	58,177	57,011	48,095	44,197
Death loss per farm—pounds.....	415	899	1,347	2,009	2,235	3,453
Percent of death loss.....	.7	1.5	2.3	3.5	4.6	7.8
Average selling price per 100 lbs. sold..	\$13.49	\$13.49	\$13.60	\$13.59	\$13.42	\$13.25
Value of death loss at price of hogs sold..	56	121	183	273	300	458
Pounds of feed concentrates per 100 pounds of hogs produced.....	471	475	474	490	496	518
Pigs weaned per litter.....	6.4	6.3	6.1	6.1	5.7	5.9

more occurred (Table 2). About 18 percent more feed was required to produce 100 pounds of salable pork on the farms having six percent or more death loss than on farms having less than one percent death loss.

The average losses due to lower returns from feed fed to hogs sold on farms having more than four percent death loss were approximately twice

TABLE 3. — DEATH LOSSES AMONG FEEDER CATTLE ON FARM BUREAU FARM MANAGEMENT SERVICE FARMS

	Feeding Year							
	1938 1939	1939 1940	1940 1941	1941 1942	1942 1943	1943 1944	1944 1945	7-year totals and averages
<i>Good-to-choice steer calves</i>								
Number of droves fed....	31	28	13	12	13	8	8	113
Number of droves having death losses.....	17	15	7	8	5	1	4	57
Percent of droves having death losses.....	54.8	53.6	53.8	66.7	38.5	12.5	50.0	50.4
Number of cattle bought..	1,364	1,026	619	521	573	310	238	4,651
Number that died.....	34	28	11	13	16	3	8	113
Percent that died.....	2.49	2.73	1.78	2.50	2.79	.97	3.36	2.43
Death loss per head sold..	\$.91	\$1.35	\$1.10	\$1.28	\$1.28	\$.27	\$1.45 ^b	\$1.10
<i>Good-to-choice yearling steers</i>								
Number of droves fed....	25	17	17	5	8	14	25	111
Number of droves having death losses.....	11	3	2	2	4	1	7	30
Percent of droves having death losses.....	44.0	17.6	11.8	40.0	50.0	7.1	28.0	27.0
Number of cattle bought..	1,475	869	806	188	393	717	1,194	5,642
Number that died.....	15	4	7	4	5	1	12	48
Percent that died.....	1.02	.46	.87	2.13	1.27	.14	1.01	.85
Death loss per head sold..	\$.72	\$.20	\$.65	\$1.21	\$.94	\$.06	\$.74 ^b	\$.58
<i>Good-to-choice heavy cattle</i>								
Number of droves fed....	11	9	6	5	18	12	23	84
Number of droves having death losses.....	1	0	0	0	3	4	4	12
Percent of droves having death losses.....	9.1	0	0	0	16.7	33.3	17.4	14.3
Number of cattle bought..	440	280	181	183	773	589	1,005	3,451
Number that died.....	1	0	0	0	5	4	5	15
Percent that died.....	.23	0	0	0	.65	.68	.50	.43
Death loss per head sold..	\$.20 ^b	\$.00	\$.00	\$.00	\$.92	\$.45	\$.50 ^b	\$.45

* From the article, "Profits and Losses in Feeding Cattle," by F. J. Reiss in Illinois Farm Economics or September and October, 1945.

^b Estimated from the analysis of other years.

the losses from the hogs that died. Disease evidently took a toll beyond the losses of the hogs that died. An average of about one-half pig more pigs were weaned per litter on farms having less than two percent death loss after weaning than on farms having losses of four percent or more. Ten percent more feed per 100 pounds of total gain (including the hogs that died) was required on farms that had losses of six percent or more than on farms that had losses of less than one percent.

Most of the death and disease loss among hogs is attributed directly or indirectly to lack of effective sanitation.

Feeder cattle death losses. An average of 2.43 percent of the good-to-choice steer calves fed on Farm Bureau Farm Management Service farms during the seven feeding years of 1938 to 1945 died (Table 3). Average losses of .85 percent of good-to-choice yearling steers and of only .43 percent of good-to-choice heavy steers occurred during the same years.

Death losses were sustained by 50 percent of the droves of calves, 27 percent of the droves of yearlings, and 14 percent of the droves of heavy cattle.

The seven-year average death loss per head sold amounted to \$1.10 for calves, 58 cents for yearlings, and 45 cents for heavy cattle.

M. L. MOSHER

LONG-TIME BENEFITS OF CONSERVATION¹

Conservation increases production and income, prevents soil erosion and the loss of capital resources, and leaves the farm more productive. A long-time study of the costs and benefits of soil and water conservation in three selected areas of Illinois shows that yields and incomes are increasing more on farms with high conservation scores than on farms with low scores (Table 1).

Farm account records were obtained on sample farms with similar land use capabilities but with differences in the extent of use of soil and water conservation practices. Based on the degree to which needed conservation measures had been applied, a soil conservation score was calculated for each farm. Farms with high conservation scores were paired with physically comparable farms with low conservation scores.

Stephenson - Jo Daviess - Winnebago counties. Continuous farm account records were available on 70 "paired" farms for the six years,

¹Summarized from a study carried out cooperatively by the Agricultural Economics Department, University of Illinois, College of Agriculture, and Economic Research Section of the Soil Conservation Service, U. S. Department of Agriculture, E. L. Sauer, Project Supervisor.

TABLE 1. — YIELDS AND INCOME ON IDENTICAL FARMS FOR TWO PERIODS, BY AREAS, FARMS WITH HIGH AND LOW CONSERVATION SCORES^a

Area and years	Crop yield index ^b		Net income per acre	
	Farms with high scores	Farms with low scores	Farms with high scores	Farms with low scores
McLean county				
1936.....	97	103	\$ 5.78	\$ 6.54
1945.....	106	94	27.51	22.64
Madison-St. Clair counties				
1939.....	100	100	9.87	9.84
1945.....	107	94	14.60	6.29
Stephenson, Jo Daviess, and Winnebago counties				
1940.....	98	102	12.46	12.91
1945.....	105	95	21.23	13.86

^a Conservation scores as computed for the year 1945.^b Average yields of all crops for all farms in each area equals 100.

1940-45. In 1940, the 35 farms with low final conservation scores had a crop yield index of 102 and a net income of \$12.91 per acre, compared to 98 and \$12.46, respectively, for the 35 farms with high final conservation scores (Table 1). The 35 farms with high conservation scores started conservation farm plans between 1938 and 1943 and a number of the 35 farms with low conservation scores have started conservation farm plans within the past two years. Conservation scores in 1945 for the two groups were 87 and 54, respectively. Compared with the low score farms the six-year period, 1940-45, corn yields averaged four bushels per acre higher and the crop yield index, six points higher on the farms with high conservation scores. Livestock production averaged slightly higher for the six-year period on the farms with high scores. Conservation expenses were 3.3 percent of the gross income for the six-year average on the farms with high scores, compared to 2.5 percent of the gross income on the group of farms with low scores. Net farm income per acre averaged \$4.22 more on the farms with high scores. These differences were less than for the six-year average in 1945, which indicates relative improvement for the farms with high conservation scores (Table 1).

Madison-St. Clair counties. Farm account records were available on the identical 48 "paired" farms for the seven-year period, 1939-45. In 1939 at the start of this seven-year period, the two groups of farms with high and low conservation scores were almost identical in productivity and in earnings (Table 1). Since then the 24 farms with high conservation scores have adopted conservation programs. Land use on the two groups of farms differed but little during the seven-year period except the farms with high conservation scores had more improved legume hay and pasture. On the farms with high conservation scores the crop yield index averaged six points higher and livestock production also averaged higher than on the farms with low conservation scores. Conservation expenses averaged

4.9 percent of the gross income on the farms with high scores and 3.4 percent on the farms with low scores. Net farm income per acre averaged \$13.88 for the farms with high conservation scores and \$9.56 for the farms with low conservation scores, an annual difference of \$4.32 per acre in net income and a total difference for the seven-year period of \$30.24 per acre in favor of the farms with the high conservation scores. Thus, while the two groups were comparable in both yields and income in 1939, the spread between the two groups had widened considerably by 1945 (Table 1). Wet weather in 1945 operated to widen differences in earnings because the high conservation farms with more and better quality hay and pasture had higher livestock production and were not affected so adversely by the wet weather.

McLean county. That the benefits of a conservation program increase from year to year is best illustrated by the ten-year records for McLean county which show that 20 farms with high final conservation scores had lower net incomes per acre in 1936 than 20 physically comparable "paired" farms with low final scores. However, net incomes per acre averaged \$2.36 higher for the five years, 1936-40, on the farms with high scores and averaged \$4.17 higher for 1941-45 (Figure 1). Increased yields on high score farms relative to low score farms was a major factor accounting for the difference in earnings (Figure 2). Corn yields were three bushels an acre higher for the 1936-40 period on the high conserva-

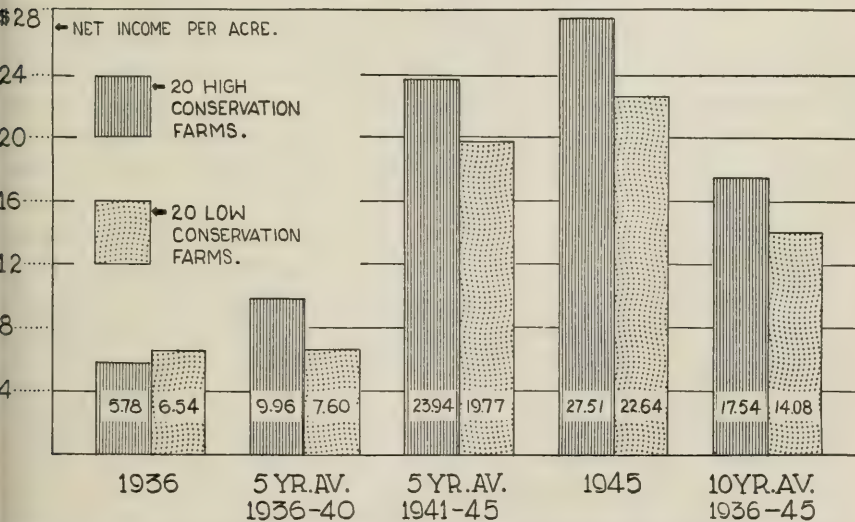


FIGURE-1-NET INCOME PER ACRE, IDENTICAL FARMS WITH HIGH AND LOW CONSERVATION SCORES, M^cLEAN COUNTY, 1936 - 1945.

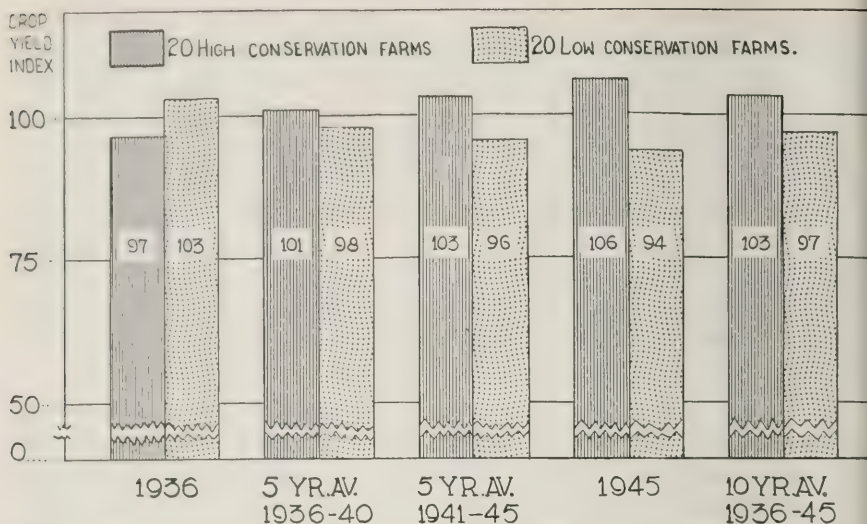


FIGURE-2-CROP YIELD INDEX, IDENTICAL FARMS WITH HIGH AND LOW CONSERVATION SCORES, McLEAN CO. 1936-45 (AVERAGE YIELDS OF ALL CROPS FOR ALL FARMS EQUALS 100).

tion farms, and six bushels per acre higher for the 1941-45 period. This widening of the difference in yields can be attributed to the better land use, greater application of limestone, phosphate, and mixed fertilizer and practices such as contouring, strip cropping, terracing, and tile and open-ditch drainage on the high conservation score farms. Expenses for conservation on farms with established conservation programs and high conservation scores for the ten years, 1936-45, averaged four percent of the gross income compared to three percent on the low conservation score farms. This average conservation expense of about \$2.00 per acre was about 50 percent higher than similar expenses on farms with low conservation scores.

Summary. The adoption of a complete conservation plan usually reduces for one or more years the net income below what it would be from farming without conservation. Studies in different areas of the state show, however, that money spent on conservation is a sound investment resulting in increased net income in from two to six years, depending on the extent of the farm's conservation needs. Returns from such investments afford a safe basis for credit for establishing the conservation program. Although the net income may be temporarily reduced, the productive value of the land increases immediately, protecting the financial position of the landowner until the long-time benefits of conservation accrue.

E. L. SAUER

SEASONAL MOVEMENTS OF SOYBEAN PRICES

Should Illinois farmers store soybeans on the farm? Will it pay? During the prewar period it would have paid well, on the average, to store until May. The gains were more numerous and larger than the losses.

At a recent special conference of representatives of research workers, processors, and producers of soybeans held at Peoria, Illinois, one speaker emphasized the desirability of more orderly marketing of soybeans. It was brought out that if the farmers sell a very large fraction of their soybean crop at harvest time, the processors in buying this crop are obliged to make contracts to sell the soybean products at that time in order to protect themselves from speculative losses. It was contended that in order to sell this large volume of products in the fall of the year, thereby forcing the buyers of the products to assume the risk of price decline, the processors, hence the farmers, were not able to get all that the beans were really worth. Therefore, it was argued that the farmer would be better off if he would store part of his beans on the farm and market them in a more orderly manner.

Processors are obliged to contract for the sale of products at the time they buy the beans or to speculate in the beans, because there is no futures market for soybeans at the present time. In other words, processors cannot hedge soybeans as they can corn, wheat, or other commodities traded in the futures market. The question, therefore, arises as to whether it would actually pay the farmer to store soybeans on the farm; whether he can afford to take the risks of price declines.

This is an economic discussion, but price movements are not the only factors that should be considered in connection with the storage of soybeans. Certainly, the availability of satisfactory unloading equipment and granaries or storage bins is important. Before planning to store soybeans on the farm, the individual farmer should make sure that he has the necessary equipment and bins and that the bins are strong enough to hold soybeans. Also he should be sure that the risk of spoilage or other physical losses is small.

In individual years the changes in the prices of soybeans caused by changes in the demand situation or the supply situation have been so great as to practically over-shadow the seasonal price movement (Fig. 1A). It is possible to discover the extent of the seasonal movement of prices by eliminating a large part of the cyclical movements, which resulted very largely from changes in demand. In this study, we shall let these cyclical movements be represented by a twelve-month moving average of monthly prices represented by the dotted line in Figure 1A. The variations of actual prices from this dotted line are then plotted in Figure 1B as deviations from the 100 percent line, just as if we stretched out the dotted line and

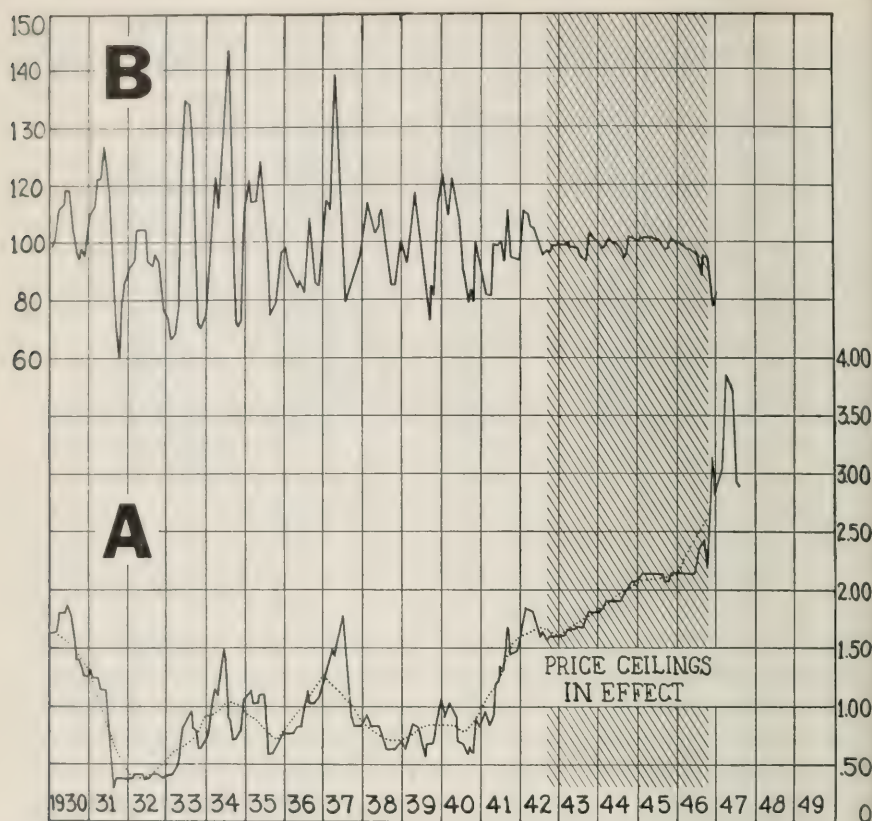


FIG. 1. — ILLINOIS FARM PRICES OF SOYBEANS, 1930-1946

A. Actual Prices and 12-Month Moving Average

B. Percentage Actual Prices Were of 12-Month Moving Average

called it 100 percent and measured the deviations above and below it. It is apparent in Figure 1B that there was a decided seasonal movement in the prices of soybeans during the prewar period. However, the timing of the highs and the lows was not uniform from year to year and neither was the amplitude of variation from the twelve-month moving average. In general, however, after eliminating influences of changes in demand, there was a tendency for the low prices to occur in September, October, or November—that is, just prior to or during harvest time and for the high prices to occur the following March, April, May, or June.

If we choose not to correct for changes in demand and supply from year to year, and use only actual Illinois farm prices for each month from October, 1925 to September, 1941 we find that the average October price for this 16-year period was 97 cents (Table 1). If we had sold our

TABLE 1.—ACTUAL MONTHLY PRICES OF SOYBEANS (ILLINOIS FARM) AND CHANGES
FROM OCTOBER, IN DOLLARS, OCTOBER 1925 TO SEPTEMBER 1941

Year Crop	Oct. Pr.	Nov. Pr.	Dec. Pr.	Dec. Chg.	Jan. Pr.	Jan. Chg.	Feb. Pr.	Feb. Chg.	Mar. Pr.	Mar. Chg.	Apr. Pr.	Apr. Chg.	May Pr.	May Chg.	June Pr.	June Chg.	July Pr.	July Chg.	Aug. Pr.	Aug. Chg.	Sept. Pr.	Sept. Chg.
1925-26	\$1.65	\$1.54	-\$.11	-\$.11	\$1.77	+\$.12	\$2.22	+\$.57	\$2.07	+\$.42	\$2.30	+\$.65	\$2.10	+\$.45	\$2.80	+\$1.15	\$2.90	+\$1.25	\$2.20	+\$.55	\$2.10	+\$.45
1926-27	1.70	1.50	-.20	-.20	1.60	-.10	1.70	0	1.90	+.20	2.00	+.10	2.10	+.10	2.15	+.05	2.00	+.10	2.00	+.00	1.60	-.10
1927-28	1.55	1.45	-.10	-.10	1.40	-.15	1.55	0	1.55	0	1.70	+.15	1.85	+.15	1.90	+.05	1.90	+.00	1.75	+.20	1.55	-.10
1928-29	1.35	1.35	0	0	1.45	+.10	1.60	+.25	1.70	+.25	2.05	+.70	2.20	+.85	2.30	+.35	2.45	+.15	2.00	+.65	1.50	+.15
1929-30	1.55	1.55	0	0	1.55	0	1.65	+.10	1.80	+.25	1.80	+.25	1.85	+.05	1.80	+.05	1.55	0	1.40	+.15	1.30	+.25
1930-31	1.30	1.20	-.10	-.10	1.25	-.05	1.25	0	1.20	-.10	1.10	-.20	1.10	-.20	1.05	-.05	1.35	+.30	1.35	+.30	1.40	+.05
1931-32	30	35	+.05	+.05	35	+.05	35	+.05	40	+.10	40	+.10	40	+.10	40	+.10	36	-.06	36	+.06	39	+.09
1932-33	40	40	0	0	38	-.02	39	-.01	41	+.01	48	+.08	40	+.40	40	+.00	95	+.55	85	+.45	80	+.40
1933-34	60	60	0	0	65	+.05	70	+.10	90	+.30	1.00	+.10	1.10	+.10	1.30	+.20	1.50	+.20	90	+.30	75	+.15
1934-35	75	80	+.05	+.05	1.05	+.30	1.10	+.35	1.15	+.40	1.05	+.30	1.10	+.35	1.10	+.00	1.35	+.25	1.10	+.60	1.15	+.05
1935-36	60	65	+.05	+.05	70	+.10	75	+.15	75	+.15	75	+.15	80	+.20	80	+.20	1.00	+.40	1.15	+.55	1.05	+.45
1936-37	1.05	1.10	+.05	+.05	1.30	+.25	1.40	+.35	1.50	+.45	1.60	+.55	1.70	+.65	1.40	+.35	1.20	+.15	90	+.15	80	+.25
1937-38	80	80	0	0	80	0	85	+.05	85	+.05	80	0	80	0	80	0	80	0	70	-.10	65	-.15
1938-39	60	60	0	0	65	+.05	70	+.10	70	+.10	75	+.15	85	+.25	80	+.20	70	+.10	60	0	70	+.10
1939-40	70	80	+.10	+.10	95	+.25	1.04	+.34	94	+.24	1.02	+.32	92	+.27	73	+.03	70	0	63	-.07	67	+.03
1940-41	65	85	+.20	+.20	81	+.16	81	+.18	89	+.24	1.08	+.43	1.20	+.55	1.25	+.60	1.34	+.69	1.33	+.68	1.67	+.1.02
Av. '25-'26																						
to 40-41.	.97	.97	0	0	1.04	+.06	1.14	+.16	1.15	+.18	1.24	+.26	1.32	+.34	1.32	+.36	1.31	+.34	1.12	+.14	1.03	+.06
Av. '30-'31																						
to 40-41.	.70	.74	+.04	+.04	.80	+.10	.86	+.15	.86	+.16	.92	+.22	.98	+.27	.94	+.24	.92	+.22	.78	+.07	.77	+.06

beans in December instead of October, we would have gained 6 cents on the average. If we had waited and sold in January, we would have gained 16 cents; in February, 18 cents; in March, 24 cents; in April, 26 cents; in May, 34 cents; and in June, 36 cents. However, if we had held them beyond June, we would only have gained 34 cents by holding from October till July, 14 cents till August, and only 6 cents till September. Soybeans were not an important crop in the 1920's, so if we make the same comparison beginning in October, 1930, and continuing through September, 1941, the gain from October to December was 10 cents. By waiting until January to sell, we would have gained 15 cents; till February, 16 cents; till March, 18 cents; till April, 22 cents; till May, 27 cents; and this is the high mark in the latter period. If we had held until June, we would have gained only 24 cents; till July, 22 cents; till August, 7 cents; and till September, 6 cents.

By referring to Table 1, it is also possible to see the maximum and minimum gains and losses that would have been incurred during this period. For example, in the crash of 1930-31, we would have lost 90 cents by holding our beans from October, 1930, until September, 1931. In general, the longer we held them that year the more money we would have lost. In contrast to this situation, if we had held our beans from October, 1932, until July, 1933, we would have gained 55 cents on 40-cent beans. In other words the profit would have been almost 140 percent. Likewise, from October, 1933, until July, 1934, we would have gained 90 cents on 60-cent beans, or 150 percent. Similarly large gains could have been made by holding 1936-crop beans and 1940-crop beans. However, a very large fraction of these gains and losses was due to changes in the economic situation and was not chiefly seasonal in character.

If we may assume that the twelve-month moving average eliminates the effect of changing economic conditions, we can get a better idea of seasonal movements by comparing the actual prices to the twelve-month moving averages. This is done in Table 2 and Figure 1B. We observe that for the period October, 1925, to September, 1941, the October price was 82.1 percent of this twelve-month moving average or trend line for that month. Likewise the November price was 84.9 percent; December, 90.8; January, 97.9; February, 99.4; March, 103.7; April, 106.8; May, 114.1; June, 114.8; July, 111.4; August, 95.1; and September, 89.0 percent of the trend line.

In other words, it is apparent that after eliminating these changes caused by the general economic situation and the supply conditions from year to year, the December price was considerably higher than the October price, and the gain kept on increasing until June although the June figure was only slightly higher than the May figure. If, however, we use the more

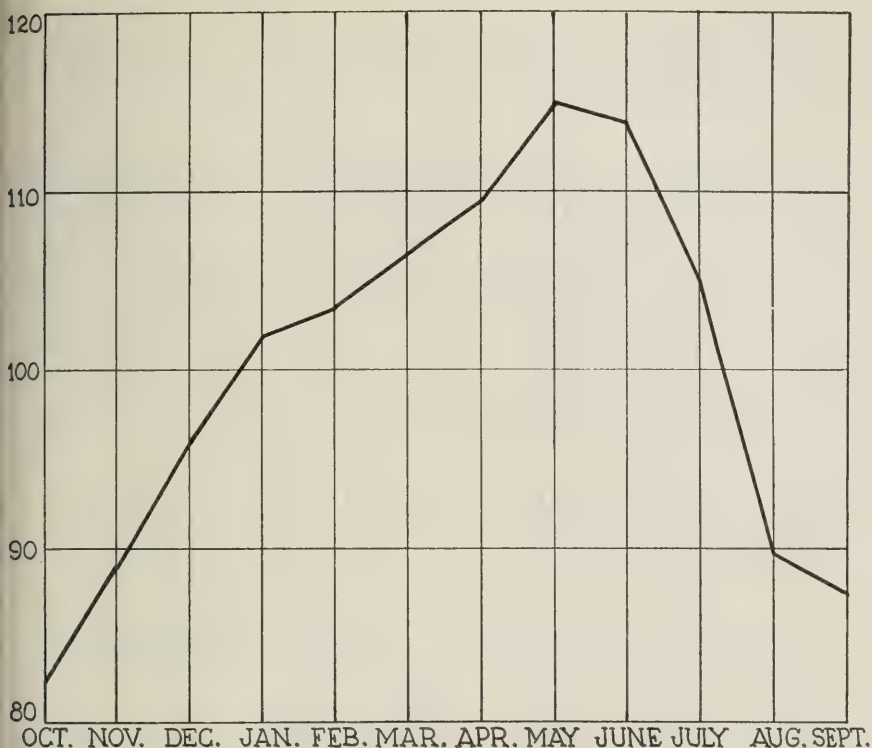


FIG. 2. — INDEX OF SEASONAL MOVEMENTS OF ILLINOIS FARM PRICES
OF SOYBEANS, OCTOBER, 1930 TO SEPTEMBER, 1941
MONTHLY AVERAGE EQUALS 100

recent 11-year period, we find that the October value is 81.3 percent of the moving average; November, 87.1; December, 93.6; January, 99.2; February, 100.4; March, 102.8; April, 106.6; May, 113.9; June, 111.6; July, 107.3; August, at 90.2; September, at 87.5 of the moving average. Here again it is evident that except for the influences attributable to the general economic situation it would have paid very well to store beans until May, on the average. With a slight correction to make them average 100, these latter values can be used to indicate an index of seasonal variations of prices received by Illinois farmers for soybeans for the 11-year period, from 1930-31 to 1940-41. The corrected figures would be: October, 82.6 percent of the crop-year average; November were 88.5 percent; December, 95.1; January, 100.8; February, 102.0; March, 104.5; April, 108.3; May, 115.7; June, 113.4; July, 109.1; August, 91.7; and September, 88.9.

TABLE 2. — PERCENT ACTUAL ILLINOIS FARM PRICE OF SOYBEANS IS OF 12-MONTH MOVING AVERAGE CENTERED AND CHANGES FROM OCTOBER, OCTOBER 1925 TO SEPTEMBER 1941

Year Crop	October		November		December		January		February		March	
	Percent	Chg.	Pct.	Chg.	Pct.	Chg.	Pct.	Chg.	Pct.	Chg.	Pct.	Chg.
1925-26	81.7		75.5	- 6.2	85.1	+ 3.4	104.7	+23.0	96.7	+15.0	106.5	+24.8
1926-27	83.3		75.0	- 8.3	82.5	- 7.8	89.5	+ 6.2	101.6	+18.3	103.5	+20.0
1927-28	83.3		75.0	- 8.3	82.5	- 7.8	89.5	+ 6.2	101.6	+18.3	103.5	+20.0
1928-29	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1929-30	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1930-31	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1931-32	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1932-33	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1933-34	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1934-35	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1935-36	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1936-37	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1937-38	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1938-39	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1939-40	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
1940-41	85.2		77.6	- 7.6	81.5	+ 3.9	87.9	+ 6.4	93.9	+13.0	100.6	+28.1
Av. '25-'26 to '40-'41	82.1		84.9	+ 2.8	90.8	+ 8.7	97.9	+15.2	99.4	+17.3	103.7	+21.6
Av. '30-'31 to '40-'41	82.6		88.5	+ 5.8	95.1	+12.5	100.8	+18.2	102.0	+19.3	104.5	+21.8
Av. of median 7 yrs.	82.4		88.8	+ 6.4	95.9	+13.5	101.9	+19.5	103.5	+21.1	106.6	+24.2

Year Crop	April		May		June		July		August		September	
	Percent	Chg.	Pct.	Chg.	Pct.	Chg.	Pct.	Chg.	Pct.	Chg.	Pct.	Chg.
1925-26	81.7		106.5	+24.8	131.5	+49.8	138.1	+56.4	105.8	+24.1	101.9	+20.2
1926-27	83.3		115.4	+32.1	119.4	+36.1	112.4	+29.1	113.6	+30.3	92.0	+8.7
1927-28	83.3		115.4	+32.1	119.4	+36.1	112.4	+29.1	113.6	+30.3	92.0	+8.7
1928-29	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1929-30	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1930-31	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1931-32	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1932-33	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1933-34	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1934-35	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1935-36	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1936-37	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1937-38	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1938-39	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1939-40	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
1940-41	85.2		110.8	+25.6	116.6	+44.5	115.9	+25.3	105.4	+14.8	92.3	+1.7
Av. '25-'26 to '40-'41	82.1		114.1	+32.0	114.8	+32.6	111.4	+29.3	95.1	+13.0	89.0	+6.9
Av. '30-'31 to '40-'41	82.6		115.7	+33.0	113.4	+30.7	109.1	+26.4	91.7	+9.0	88.9	+6.3
Av. of median 7 yrs.	82.4		114.9	+32.5	113.9	+31.5	104.8	+22.4	89.7	+7.3	87.5	+5.1

The best we can do in trying to compute an index of seasonal variations in prices of any given product is to determine a central tendency. We could let the average of all the 11 years represent this central tendency as we did in the preceding paragraph, or we could eliminate the years in which the values appear to be abnormally large or abnormally small, on the assumption that these extremes were caused, not by factors affecting normal seasonal price movements, but by very unusual changes in demand which were not entirely accounted for by the twelve-month moving average. Frequently prices of grain over-compensate for a short time for the actual changes in demand or supply. The actual conditions are not known and purchases and sales must be based on anticipations which may turn out to be erroneous. If during the 1930-31 to 1940-41 period we eliminated the two years in which the ratio to trend was lowest and the two years in which the ratio to trend was highest for each individual month, the seasonal index would be as follows:

October.....	82.4	February.....	103.5	June.....	113.9
November.....	88.8	March.....	106.6	July.....	104.8
December.....	95.9	April.....	109.6	August.....	89.7
January.....	101.9	May.....	115.0	September.....	87.5

This would seem to be a reasonable set of figures to use to show the general tendency for Illinois farm prices of soybeans to change throughout the season during the period used. Any tendency for farmers to store more beans on the farm and to sell them later in the year would reduce the seasonal price spreads. Likewise, it is entirely possible and probable that the re-establishment of future trading in soybeans would tend to reduce the amplitude of seasonal variation in soybean prices. This would result from the greater willingness of speculators to absorb risks of price changes than would be true of processors or buyers of the soybean products.

Each individual farmer will have to determine for himself whether he should provide facilities and store his beans on the farm. The prewar historical records suggest the desirability of providing and using more farm storage for soybeans. However, each individual year is a separate problem. In periods of severe recession, that is, declining demand, profits from storage would be small and, if the decline in demand were great enough, losses might actually be sustained. If the demand remains constant or improves after harvest, the chances of gain from storage, especially until the following May, are favorable. In this connection, as with all other purchases and sales, a knowledge of the outlook for changes in demand and in the production of the commodity and all competing goods will pay well.

G. L. JORDAN

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 7-47, 8900
Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-
1932.....	65	48	56	96	60	57	60	73	51	58
1933.....	66	51	57	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	102	101	90	86	85	86	80	87
1936.....	81	81	105	100	104	109	110	101	93	103
1937.....	86	86	118	104	108	116	112	107	111	113
1938.....	79	69	90	98	99	107	109	90	85	89
1939.....	77	65	84	97	99	107	110	106	100	109
1940.....	78	68	89	98	107	114	116	115	114	125
1941.....	87	82	112	103	142	146	140	138	168	162
1942.....	99	105	141	117	197	200	169	171	245	199
1943.....	103	123	165	127	251	243	191	209	330	239
1944.....	104	124	165	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1946.....	121	148	204	151	302	295	195	238	261	170
1946 May...	111	138	186	145	284	262	181	234	248	159
June.....	113	140	186	147	271	182	124	234	257	171
July.....	125	157	231	155	335	284	183	240	261	173
Aug.....	129	161	235	159	313	245	154	243	278	180
Sept.....	124	154	216	156	249	178	114	243	284	184
Oct.....	131	163	256	162	348	522	322	244	286	184
Nov.....	137	169	241	166	367	539	325	247	292	182
Dec.....	140	168	236	166	363	374	225	250	300	180
1947 Jan.....	142	165	229	168	366	363	216	251	300	185
Feb.....	145	170	235	173	352	346	200	253	...	185
Mar.....	150	182	259	177	364	...	...	254	...	187
Apr.....	148	177	252	180	...	...	...	252	...	184 ¹¹
May.....	147 ¹¹	176 ¹¹	245	178	...	...	...	...	...	...

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			June 1946	Current months		
	1935-39	1945	1946		April	May	June
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.36	\$1.67	\$1.61	\$1.93
Oats, bu.....	.31	.68	.77	.81	.88	.90	.92
Wheat, bu.....	.86	1.58	1.83	1.82	2.54	2.44	2.18
Barley, bu.....	.62	1.09	1.29	1.26	1.55	1.55	1.55
Soybeans, bu.....	.90	2.09	2.30	2.10	3.65	2.92	3.05
Hogs, cwt.....	8.52	14.25	17.53	14.40	24.10	23.30	23.80
Beef cattle, cwt.....	7.88	13.22	16.41	15.00	18.90	19.90	21.30
Lambs, cwt.....	8.36	13.77	16.38	15.00	19.70	20.40	21.90
Milk cows, head.....	58.00	125.50	147.00	142.00	170.00	175.00	175.00
Veal calves, cwt.....	8.66	13.99	16.78	15.80	20.90	22.70	23.10
Sheep, cwt.....	3.58	6.38	6.99	6.80	7.30	7.90	7.00
Butterfat, lb.....	.27	.48	.63	.49	.64	.59	.60
Milk, cwt.....	1.68	2.95	3.80	3.15	3.95	3.60	3.30
Eggs, doz.....	.19	.35	.34	.30	.38	.37	.37
Chickens, lb.....	.15	.25	.27	.26	.28	.28	.28
Wool, lb.....	.25	.43	.43	.43	.42	.35	.36
Apples, bu.....	1.08	2.99	3.37	3.05	3.50	3.50	3.50
Hay, ton.....	9.39	17.72	15.55	14.50	16.50	17.00	17.00
Potatoes, bu.....	.91	2.06	1.70	1.70	1.65	1.70	1.70

¹²⁻¹³ For sources of data in tables see preceding issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

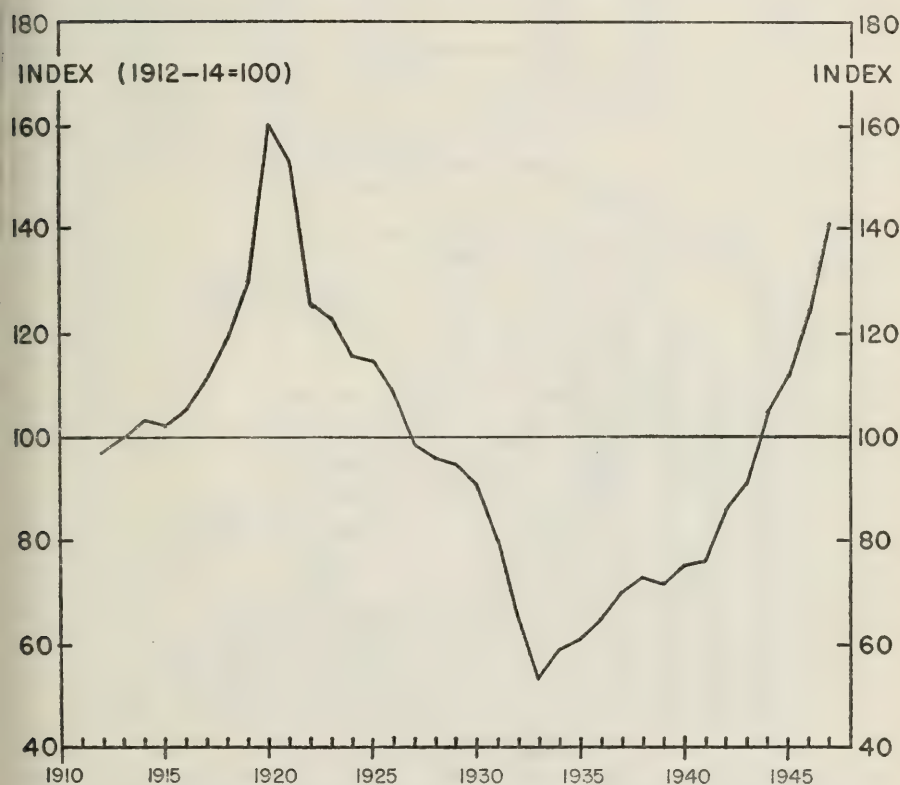
College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

July-August, 1947

Numbers 146 and 147

Summary of Annual Farm Business Reports of 2,565 Illinois Farms For the Year 1946



ILLINOIS LAND PRICES: The land boom that followed World War I was of short duration; the collapse was sudden; the effects were long-lasting.

Now we are experiencing another land boom that threatens the welfare of agriculture.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

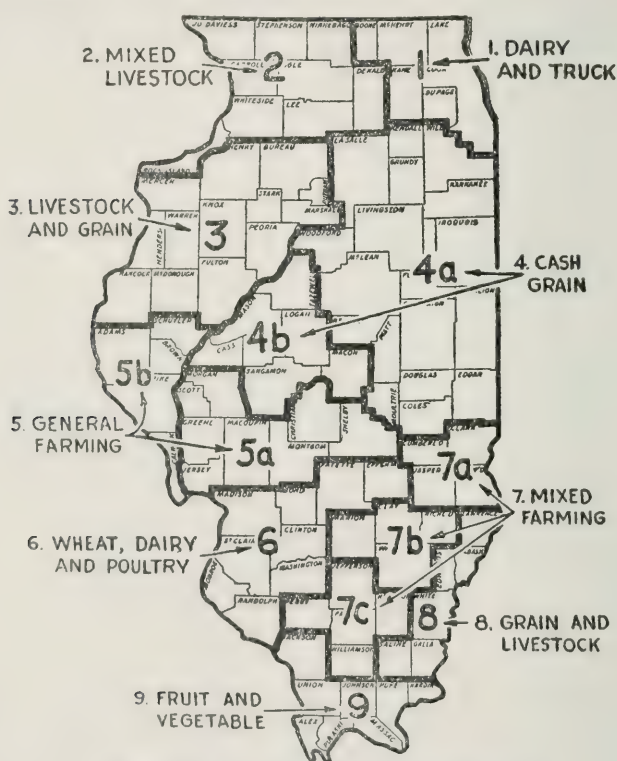
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FOREWORD

This analysis of farm income and expenses for 1946 and the past thirty years will be of special value during this critical postwar period. In addition to helping farmers make wise adjustments in the organization and operation of their farms, these data help one to keep alert to changing conditions and the data are useful in studying national agricultural problems and policies.

The report also provides helpful information for state and county extension organizations, Smith-Hughes and G.I. instructors, farm credit representatives, farm managers and rural appraisers, and other organizations and individuals who are working with farmers.

H. C. M. CASE



THE NINE MAJOR TYPE-OF-FARMING
AREAS IN ILLINOIS

SUMMARY OF FARM BUSINESS REPORTS ON 2,565 FARMS IN ILLINOIS FOR 1946¹

J. B. CUNNINGHAM, A. G. MUELLER, and F. J. REISS

Net cash income an acre. The average net cash income an acre for accounting farms in 1946 was the highest on record, exceeding the previous record earnings in 1943 by \$1.08 an acre. The earnings figure was \$19.63 for 1946, compared with \$15.35 for 1945, \$18.55 for 1943; \$1.47 for 1932 and an average of \$5.30 for 1934 to 1939 when earnings were practically the same in each year (Figure 1).

The average net cash income an acre for Illinois accounting farms from 1932 to 1946 was as follows:

1932.....\$1.47	1937.....\$5.33	1942.....\$14.99
1933.....3.00	1938.....5.25	1943.....18.55
1934.....5.40	1939.....5.40	1944.....17.30
1935.....5.14	1940.....6.82	1945.....15.35
1936.....7.40	1941.....9.91	1946.....19.63

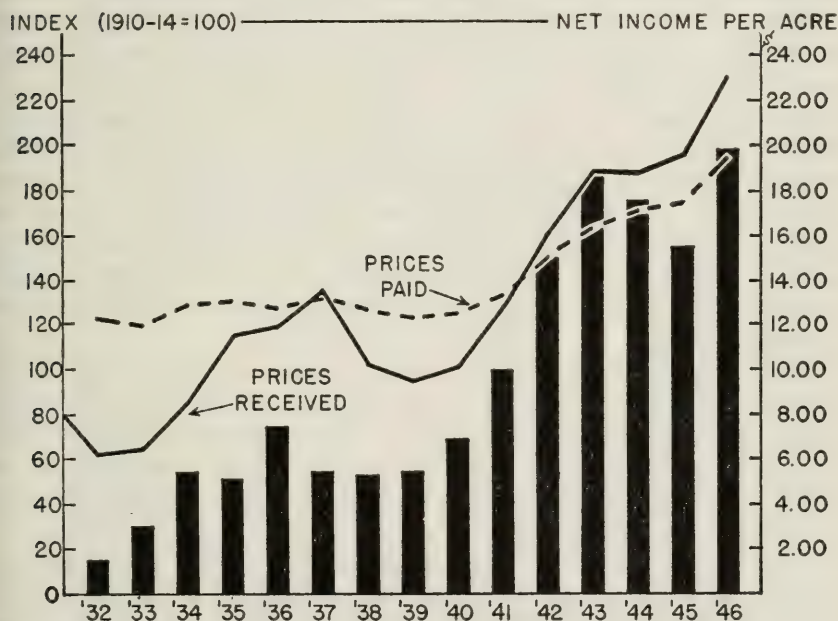


FIG. 1.—AVERAGE NET CASH INCOME AN ACRE (UNPAID LABOR DEDUCTED) ON ILLINOIS ACCOUNTING FARMS, PRICES PAID BY FARMERS IN THE UNITED STATES, AND PRICES RECEIVED BY ILLINOIS FARMERS, 1932-1946

¹ Averages in this report include 1,562 Farm Bureau Farm Management Records and 1,003 State-Wide Extension project records unless indicated otherwise. Of the 1,562 Farm Bureau Farm Management Service records, 191 records in the Illinois Valley area are included in county tables, but not in the area or state averages.

The net cash income an acre was computed by subtracting the value of unpaid labor from the cash balance for the year and dividing that difference by the number of acres in the farm. In order to calculate the state averages, farming-type area averages were weighted by the acres of land in farms (census) in each area.

These returns do not include the inventory changes or the money value of food, fuel, and other items of living obtained from the farm. The net cash income an acre is one of the best measures for comparing incomes of groups of farms over a period of years, or for contrasting the level of income for different type-of-farming areas. During any period of years, earnings fluctuate more widely from year to year when inventory changes are included, since there are usually inventory losses when prices are declining and inventory increases when prices are rising.

Effect of large production and high prices on earnings. In 1946 the ratio of prices received by Illinois farmers to prices paid for supplies was 120 percent of the 1910-1914 ratio, and in 1937, it was 102 percent, or 18 points lower. Why then, should net cash income an acre be almost four times as much in 1946 as in 1937? The answer is simply that the influence of the war caused a high level of both domestic and foreign demand for agricultural products in 1946 and farmers had a large supply of salable products to fill this demand. Such a combination of circumstances is unusual. Therefore, a farmer should be cautious in making long-time commitments based on 1946 net earnings. This word of caution applies particularly to a beginning farmer who may be interested in buying land on the present inflated market and is paying for it out of future farm earnings.

We have had years of low volume of sales as in 1937, when prices were high, but there was little to sell, and we have had years like 1939 when a large volume of products was sold at relatively low prices. The effect of both of these combinations was a fairly low level of farm incomes. Contrast these years with 1946 when a large volume of products was sold at high prices.

Accounting farms represent better than average conditions. In 1946, the accounting farms averaged 99 acres larger than all farms in the state, produced 6.6 more bushels of corn per acre, and gave about 30

Item	All farms	Accounting farms
Average size, acres	155	254
Corn yield an acre, bushels.	57.0	63.6
Average gross cash income a farm.	\$11,883*	\$15,544

* All farms adjusted to the same size as the accounting farms.

percent more gross income per farm when all farms were adjusted to the same size as the accounting farms. Previous studies also indicate that accounting farmers are more skillful in the organization and operation of their farms than the average for the state. Therefore, the data in this report represents better-than-average conditions.

Earnings compared for World War I and World War II. Farm earnings on an inventory basis are shown in Figure 2 for accounting farms in east-central Illinois. This is the only area in the state where adequate records are available for the 31 years which include the two World War periods. Earnings in this area are indicative of those for the state.

Included in the net earnings are: (1) cash balance, (2) inventory change, (3) value of farm products used in the household, and (4) value of unpaid labor (Figure 2). The items above the line are additions; those below the line are deductions. For example, in 1940 the value of unpaid labor and the decrease in inventory totaling \$718, were subtracted from the sum of the cash balance and the value of farm products used in the



FIG. 2.—CASH BALANCE, INVENTORY CHANGE, UNPAID LABOR, AND VALUE OF FARM PRODUCTS USED IN THE HOUSEHOLD PER FARM; NET EARNINGS PER ACRE; ACCOUNTING FARMS IN EAST-CENTRAL ILLINOIS, 1916-1946

household totaling \$3,943. Thus the net farm income was \$3,225 or \$12.13 an acre. The annual net income per acre is shown by the black line.

High farm earnings continued longer and reached greater heights during World War II and after than during World War I. Furthermore, earnings were more fully realized in cash, as indicated by higher cash balances during the last war than during World War I. More available cash resulted in the retirement of many farm mortgages and in the accumulation of cash reserves, which foreshadow inflationary dangers—especially in the land market.

Affecting earnings was the 32-percent increase in average size of farm, from 200 acres in 1916-1920 to 263 acres in 1942-1946. The additional acres, while not necessarily increasing the net income per acre, added volume to the business and resulted in larger incomes per farm during World War II than during World War I. The change in size was due primarily to the introduction of improved machinery, which allowed the same amount of labor to handle more acres.

During the 31 years, 1916-1946, inventories increased in 20 years and decreased in 11; all but two of the decreases were between 1919 and 1932, following World War I. Increased inventories since 1933 were caused by larger production and higher prices. A reversal of the trends in these two items would immediately be reflected in lower farm earnings.

Unpaid labor of the operator and other members of his family increased in value from \$360 in 1916 to \$951 in 1927; decreased to \$664 in 1940; and then increased to \$1,778 in 1946. During these years the amount of unpaid labor varied little but the value varied with changes in going rates for hired labor.

The value of farm products used in the household, an item of great importance in less commercialized areas, varied from year to year depending principally on price changes, averaging \$322. In 1946 it averaged \$442.

Value of farm products used in the household. In the area farm business reports which have been published separately, and in the printed tables at the back of this report, the farm value of meat, milk, eggs, and other farm products used in the household was included as a source of income. These products have also been included in comparing the 1940-1946 records in Table 1. The average values per farm of farm products used in the household has shown a steady increase since 1940, reflecting increases in prices.

From the records which are used to analyze the farm business, rental value of the farm residence, as well as depreciation and maintenance expenses of the residence are omitted. Thus the accounting for farm buildings agrees with income tax rulings.

TABLE 1.—SELECTED ITEMS OF INCOME AND EXPENSE ON
ILLINOIS ACCOUNTING FARMS, 1940-1946^a

Item	1940	1941	1942	1943	1944	1945	1946
Acres per farm.....	242	239	239	246	255	255	254
Cash income per farm.....	\$6 334	\$8 002	\$10 865	\$13 204	\$13 748	\$13 376	\$15 544
Cash expenditures per farm.....	4 094	4 983	6 470	7 548	7 998	8 008	9 080
Cash balance.....	\$2 240	\$3 019	\$ 4 395	\$ 5 656	\$ 5 750	\$ 5 368	\$ 6 464
Inventory increase.....	541	2 082	1 562	778	—274	190	2 500
Farm products used in household...	243	284	342	397	405	413	456
Cash balance plus inventory increase and farm products used in house- hold.....	\$3 024	\$5 385	\$ 6 299	\$ 6 831	\$ 5 881	\$ 5 971	\$ 9 420
Unpaid labor.....	691	769	1 011	1 374	1 634	1 696	1 783
Net farm earnings.....	\$2 333	\$4 616	\$ 5 288	\$ 5 457	\$ 4 247	\$ 4 275	\$ 7 637
Gross receipts per acre ^b	\$20.16	\$31.26	\$36.87	\$41.53	\$40.27	\$41.44	\$53.34
Total expense per acre ^c	10.47	11.63	14.82	19.35	23.62	24.61	23.13
Net receipts per acre ^b	\$ 9.69	\$19.63	\$22.05	\$ 22.18	\$ 16.65	\$ 16.83	\$ 30.21
Net income per acre (cash basis) ^d ...	6.82	9.91	14.99	18.55	17.30	15.35	19.63

^a These state averages were obtained by weighting area averages. The last item, net receipts per acre (cash basis), was weighted by the acres of land in farms in each area: all other items were weighted by the number of census farms in each area.

^b Receipts include inventory changes and farm products used in household.

^c Total expense includes unpaid labor change.

^d Cash balance less unpaid labor.

Cash income per farm. The average cash income and cash expenditures per farm in 1946 were the highest in the history of farm accounting in Illinois (Table 1).

The average cash balance of \$6,464 for 1946 was over six times greater than the average cash balance of \$968 for 1932, the low income year of the depression. Although the cash balance for 1946 was \$1,096 higher than 1945, part of the income tax payments must be deducted from this sum in order to calculate the increase available for family living and savings.

Cash farm business expenditures. Illinois accounting farmers spent more money to run their farms in 1946 than in any previous year of record. This was due to: (1) higher prices paid; (2) the increasing need for farmers to purchase a higher percentage of the materials used to operate their farms, and (3) the upward trend in size of farms. Cash expenditures averaged 13 percent higher in 1946 than in 1945 and 122 percent larger in 1946 than in 1940 (Table 2). All items of operating expense increased except machinery expenses and feed and grain. Capital purchases of machinery and equipment were twice as large in 1946 as in 1945, but capital purchases of land improvements and farm buildings were lower, probably as a result of a shortage of available supplies of fertilizer and building materials.

The average expenditure per farm of \$9,080 in 1946 may be contrasted with an average expenditure of \$1,494 per farm in 1933, the low

TABLE 2.—CASH FARM BUSINESS EXPENDITURES ON ILLINOIS
ACCOUNTING FARMS, 1940-1946

Nature of expenditures*	Average per farm							Percent 1946 is of 1945
	1940	1941	1942	1943	1944	1945	1946	
Land improvements, total.....			\$ 222	\$ 258	\$ 382	\$ 433	\$ 545	126
Capital purchases.....			(158)	(172)	(252)	(276)	(210)	76
Operating expense.....	\$ 368	\$ 389	(64)	(86)	(130)	(157)	(335)	213
Farm buildings, total.....			310	322	362	352	491	139
Capital purchases.....			(208)	(202)	(228)	(216)	(182)	84
Operating expense.....			(102)	(120)	(134)	(136)	(309)	227
Machinery and equipment, total	1 019	1 335	1 430	1 427	1 788	1 968	2 494	127
Capital purchases.....			(648)	(483)	(687)	(737)	(1 479)	201
Operating expense.....			(782)	(944)	(1 101)	(1 231)	(1 015)	82
Feed and grain.....	647	947	1 461	2 119	1 931	1 803	1 702	94
Crop and sealing expense.....	152	159	220	291	332	343	372	108
Hired labor.....	369	432	548	702	719	692	805	116
Taxes.....	287	294	302	321	339	351	357	102
Livestock and miscellaneous...	1 252	1 427	1 977	2 108	2 145	2 066	2 314	112
Total cash expenses.....	\$4 094	\$4 983	\$6 470	\$7 548	\$7 998	\$8 008	\$9 080	113

* Total for each item of expenditure was determined by weighting the averages of each area by the number of census farms in the area.

point for expenditures in the depression period—an increase of 508 percent. This increase reflects changes in the price level, in quantities purchased, and in the average size of farm.

Inventory increases. With the exception of 1944, inventories for all accounting farms have increased each year since the depression year of 1932; these increases have ranged from \$428 in 1938 to \$2,500 in 1946 (Table 1, 1940-1946). Since 1932, the net inventory increase per farm has totaled \$12,216.

An inventory increase indicates that the combined value of livestock, grain, improvements, and machinery was larger at the end of the year than at the beginning. The ending inventory of each year is for the same farms as the beginning inventory, but the farms included in the averages are not exactly the same in each year because some old cooperators are dropped each year and new ones are added.¹

The inventory increases since 1932 reflect the increase in prices for farm products, heavy investments in improvements and machinery, and an accumulation of grain and livestock. Enough money has been spent for machinery and improvements, so that the value per farm on January 1, 1946 was 118 percent larger for machinery and 45 percent larger for improvements than in 1934. For each year since 1932, except 1944, earnings have been higher when inventory changes have been included. On the other hand, inventory losses averaged \$866 a year for the three years, 1930-1932, and \$274 for 1944.

The inventory gain in 1946 was due largely to increases in price of livestock and in quantities as well as in price of feed and grain. Inven-

¹ More than 1,200 of the cooperators have kept records for ten or more years.

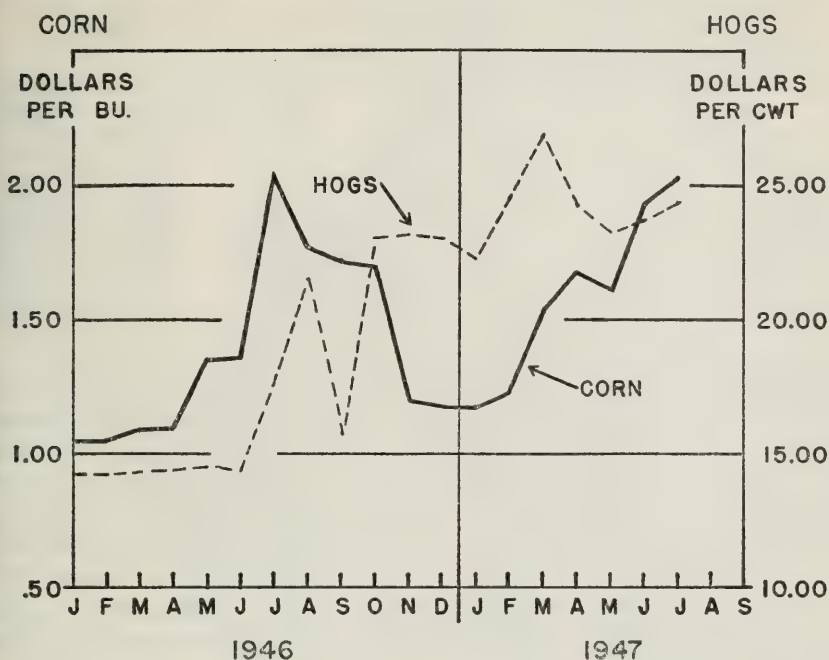


FIG. 3.—AVERAGE MONTHLY ILLINOIS FARM PRICES OF CORN AND HOGS FOR 1946 THROUGH JULY, 1947

tories of machinery, buildings, and land improvements also increased, but these items accounted for less than one-fifth of the total increase. The cash basis more nearly reflects the ability of a farmer to pay his interest, to buy the things that his family need, and to add to his savings than when inventory changes are included. Inventory changes must be included, however, to find the net position of the farm business for the year.

Variations in earnings from farm to farm. Earnings for the farms included in each area vary widely. Much of the farm-to-farm variation is due to the managerial ability of the operators and to the manner in which the farms are organized and operated. Also in 1946 when farm prices fluctuated widely, time of marketing was an important factor. The wide variation in rate earned on investment, net earnings per farm, and labor and management earnings indicates the opportunities which some farmers have for improving their incomes. These variations are largely due to factors over which the operator has some control.

Prices of farm products. Indicative of what has been happening to prices of many farm products is Figure 3 which gives the average monthly prices of corn and hogs from January, 1946 through July, 1947. Early in 1946 prices were still stabilized under government regulations.

TABLE 3.—CHANGE IN QUANTITIES OF CORN ON ILLINOIS FARMS
FROM JANUARY 1 TO DECEMBER 31, 1946

	January 1 Bushels	December 31 Bushels	Change Bushels
Area 1	2,166	2,219	+ 53
Area 2	2,286	2,745	+ 459
Area 3	2,305	3,203	+ 898
Area 4	3,300	4,026	+ 726
Area 5	1,637	2,759	+ 1,122
Area 6	774	1,385	+ 611
Area 7	465	1,297	+ 832
Area 8	1,531	2,700	+ 1,169
Area 9	700	916	+ 216
State average (wt. by number of farms)			+ 756

Then in May, to get more corn in commercial channels, the government offered a 30 cent a bushel bonus, and the price increased by the amount of this subsidy. On July 1 the OPA was allowed to lapse, and both corn and hog prices advanced sharply only to be reduced temporarily when price regulations again became effective. In October, price controls on these products, as well as on most other farm products, were released. The immediate effect was for prices of products in short supply, like hogs, to reach record levels. The release of price controls, however, was not enough to stem the sagging corn market which was under the influence of prospects for a bumper crop. Thus corn prices dropped from \$2.05 a bushel in July, 1946 to \$1.18 in December, 1946 and January, 1947. Then another major factor entered the corn market; an exceptionally heavy foreign demand for grain developed. This, combined with unfavorable planting and growing weather in 1947, caused corn prices to rise to the highest peak on record.

Wide variations in prices during 1946, due principally to changing price controls, was one of the most important factors affecting earnings on individual farms. It will continue to be an important factor in 1947, but the conditions mentioned above, causing price variations in 1947 are quite different from those in 1946.

Variation in supplies. Although prices at inventory time are a strong influence on farm earnings, the effect of supplies may be just as great. The price of corn in January, 1946 was \$1.06 a bushel. A year later it was \$1.18, or 12 cents higher.

At the end of the year there was more corn on hand than at the beginning of the year in all areas, the increase ranging from 53 bushels in Area 1 to 1,169 bushels in Area 8. The average increase per farm for all areas was 756 bushels. This increase at \$1.18 a bushel, the approximate inventory value at the end of the year, raised the earnings \$892 a farm.

Crop yields in Illinois. Although Illinois has had ten consecutive years of high crop yields, the yields in 1946 topped them all; in fact, the

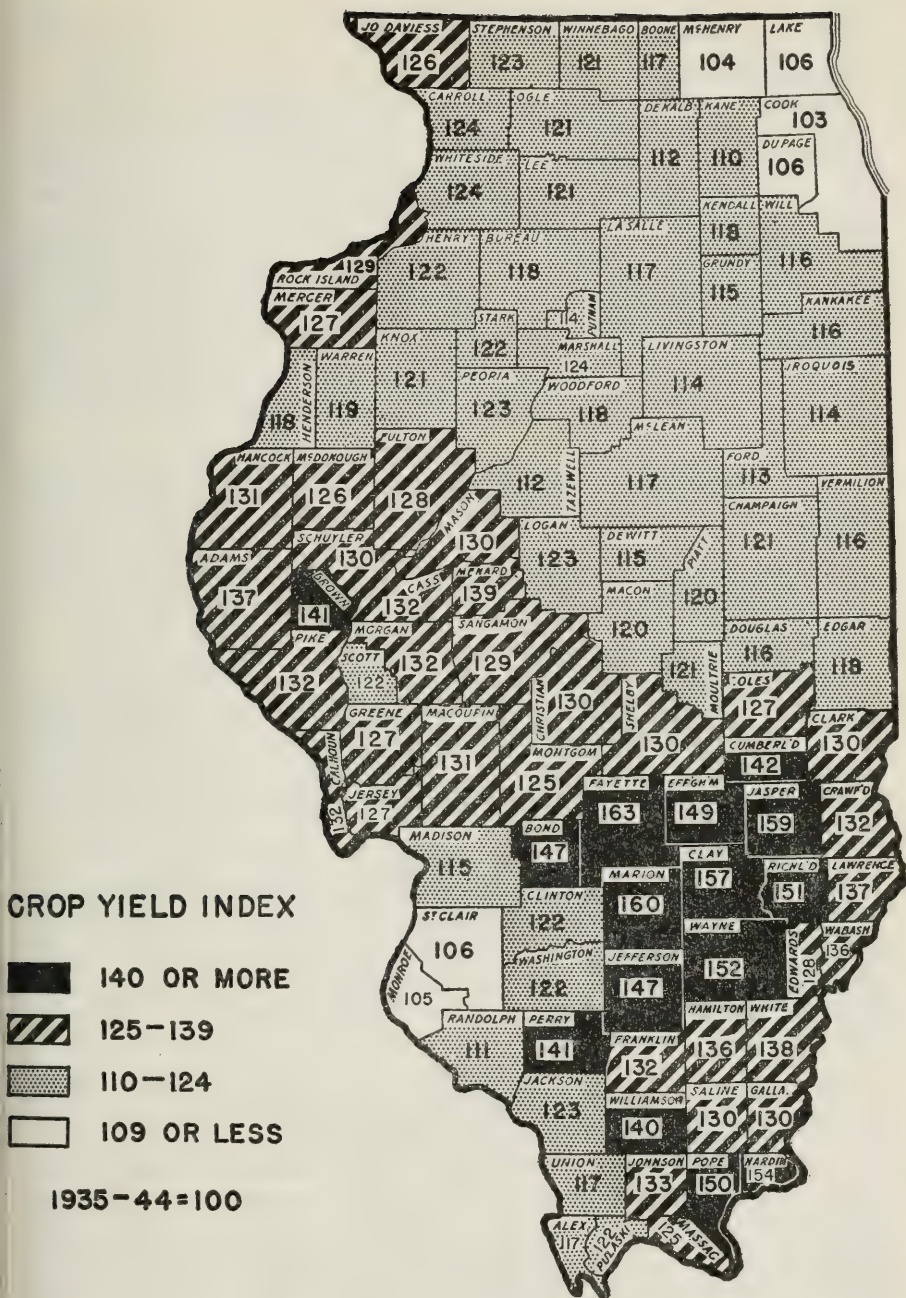


FIG. 4.—CROP YIELDS FOR 1946 COMPARED WITH 10-YEAR (1935-1944) AVERAGE YIELDS FOR THE SAME COUNTY. THE INDEXES ARE BASED ON COUNTY YIELDS OF CORN, OATS, WHEAT, AND SOYBEANS (DATA FROM ILLINOIS COOPERATIVE CROP REPORTING SERVICE)

TABLE 4.—NET INCOME AN ACRE (CASH BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1944, 1945, 1946^a

Farming-type areas	1925-1929	1930-1934	1935-1939	1940-1944	1944	1945	1946
Area 1, Chicago Dairy.....	\$9.59	\$5.25	\$5.61	\$13.72	\$19.80	\$20.44	\$22.29
Area 2, Northwestern Mixed Livestock.....	7.94	4.92	7.23	16.23	20.48	20.74	22.87
Area 3, Western Livestock and Grain.....	9.05	4.86	6.99	16.93	21.51	21.47	25.03
Area 4, East-Central Cash Grain.....	8.91	4.46	7.15	18.15	23.00	18.98	27.15
Area 5, West-Central General Farming.....	6.35	3.23	4.62	11.58	15.56	13.18	16.36
Area 6, St. Louis Dairy and Wheat.....	3.26	2.03	3.32	5.79	6.35	6.77	7.79
Area 7, South-Central Mixed Farming.....	2.21	.91	1.96	3.47	4.67	2.18	3.97
Area 8, Wabash Valley Grain and Livestock...	4.57	1.73	3.96	6.58	8.38	5.39	7.67
State Average (weighted by acres in each area)...	\$7.13	\$3.74	\$5.70	\$13.51	\$17.30	\$15.35	\$19.63

^a Includes records of the Farm Bureau Farm Management Service for 1938-1946.

highest on record. The weighted average yield of corn, oats, soybeans, and wheat for 1946 was 121 percent of the ten-year average, 1935-1944 (Figure 4).

In 1946, every county in the state had crop yields above their previous ten-year average. Yields ranged from 103 percent in Cook County to 163 in Fayette County.

For 1946 yields of the four principal crops as expressed in percentages of 1935-1944 averages, follow: corn, 126; oats, 122; soybeans, 116; and wheat, 89. Corn yields were higher than the ten-year average for the same county in all but Lake, Cook, and McHenry counties; oats in all but Edwards County; and soybeans in all but DuPage, Lake, Cook, and McHenry counties.

The wheat yield for the state was only 89 percent of the 1935-1944 average. Yet about two-thirds of the counties had yields over 100 percent. This situation was due to below-average yields in 35 counties in the southern half of the state where wheat is one of the principal crops. In these 35 counties, however, the low wheat yield was more than offset by high corn and soybean yields.

TABLE 5.—INVENTORY CHANGES BY FARMING-TYPE AREAS, 1946^a

Farming-type areas	Number of records	Livestock	Feed and grain	Machinery	Buildings	Land improvements	Total
Area 1.....	96	\$ 878	\$ 351	\$236	\$232	\$306	\$2 003
Area 2.....	285	1 232	810	344	243	86	2 715
Area 3.....	340	1 278	1 510	256	—37	179	3 186
Area 4.....	921	1 058	1 065	296	—1	156	2 574
Area 5.....	234	1 248	1 465	321	18	182	3 234
Area 6.....	246	301	865	204	161	80	1 611
Area 7.....	120	563	1 042	223	4	79	1 911
Area 8.....	90	651	1 001	154	19	77	1 902
Weighted Average ^b		\$ 953	\$1 080	\$269	\$ 55	\$143	\$2 500

^a Includes Farm Bureau Farm Management Service records.

^b Weighted by number of census farms.

Indicative of the high corn and soybean yields in southern Illinois in 1946 was Fayette County with a corn yield of 44 bushels per acre which was 175 percent of their ten-year average, and with a soybean yield of 20 bushels per acre which was 172 percent of their 1935-1944 average.

Variations in net cash income an acre. The 1946 average net cash income per acre for Illinois accounting farms varied from \$3.97 in Area 7 to \$27.15 in Area 4 (Table 4).

Net cash incomes per acre were higher in 1946 than in 1945 in all areas. Increases varied from \$8.17 or 43 percent in Area 4 to \$1.02 or 15 percent in Area 6. Net cash income for the state as a whole was \$4.28 or 28 percent above the 1945 cash income per acre.

The net cash income reflects in part, the crop yields of the preceding year because a large percentage of the grain and livestock sales are from crops harvested in previous years. It also reflects current prices for products produced in the area. In 1946, increased farm prices were instrumental in increasing cash farm income throughout the state.

Inventory changes by farming-type areas. The average inventory increased \$2,500 a farm in 1946, the greatest increase in inventory recorded since 1926. In comparison, inventories decreased by \$274 in 1944 and increased only \$190 per farm in 1945. With the removal of price controls, farm prices of grain and livestock advanced sharply in 1946 and a favorable crop season increased the amount of grain on hand at the end of the year. Livestock and feed and grain accounted for \$2,033 of the total increase of \$2,500 in 1946 (Table 5). Capital items of machinery, buildings, and land improvements also increased in 1946, indicating relatively large purchases of these items.

Variations in net income an acre with inventory change included. When inventory changes are included, the average net income an acre was 76 percent higher in 1946 than in 1945 (Table 6). This increase of 76 percent with inventories included is in contrast with an increase of 28 percent on the cash basis. Thus, the increase in inventories was much greater than the increase in cash income in 1946.

This is the thirteenth year since 1932 that the net income on the inventory basis has been higher than on the cash basis. The low years for the inventory basis were 1930, 1931, 1932, and 1944. In 1946, the range in net income per acre on an inventory basis was from \$10.74 in Area 7 to \$37.65 in Area 3.

Income from agricultural payments. Cash incomes of accounting farmers in 1946 included governmental payments which were received during the year for participation in the agricultural conservation program.

Source of income. Grouping by source of income for 1946 gives each farmer an opportunity to compare his farm with the average of

TABLE 6.—NET INCOME AN ACRE (INVENTORY BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1944, 1945, 1946^a

Farming-type areas	1925-1929	1930-1934	1935-1939	1940-1944	1944	1945	1946
Area 1, Chicago Dairy.....	\$11.04	\$2.64	\$10.03	\$20.54	\$17.91	\$20.96	\$32.01
Area 2, Northwestern Mixed Livestock.....	15.11	2.70	11.45	22.23	19.97	20.03	36.04
Area 3, Western Livestock and Grain.....	10.24	2.84	11.43	22.53	20.75	18.35	37.65
Area 4, East-Central Cash Grain....	10.30	2.76	11.05	21.81	20.60	22.51	36.49
Area 5, West-Central General Farming.....	7.69	1.99	7.92	15.38	14.53	14.26	28.68
Area 6, St. Louis Dairy and Wheat..	5.41	.92	5.55	8.37	8.37	5.87	14.81
Area 7, South Central Mixed Farming.....	3.34	.55	3.76	5.46	4.03	1.92	10.74
Area 8, Wabash Valley Grain and Livestock.....	5.34	1.20	5.22	9.21	6.73	8.56	15.32
State Average (weighted by acres in each area).....	\$ 8.59	\$2.20	\$ 9.23	\$17.56	\$16.18	\$16.12	\$28.39

^a Includes records of the Farm Bureau Farm Management Service for 1938-1946.

other farms having similar sources of income. It also gives him an opportunity to study investments, land use, crop yields, labor requirements, power and machinery requirements, and other factors associated with various types of farming.

Farmers, however, should be careful in interpreting the data in Table 7. For example, the fact that dairy farmers in areas 2 and 3 earned the largest rate on the investment for 1946 and that grain farms earned the smallest does not mean that such a relationship will prevail over a long period of years. The relative profitableness of enterprises is influenced by conditions affecting prices, production, and costs.

When comparing crop yields for the various types of farming, one should note the following items indicating that the grain farms were located on the better land: (1) higher value of land per acre; (2) larger percent of land in grain, and (3) higher corn yield per acre.

Differences in expenses are highly significant for the 5 groups of farms. Labor input per 100 acres was highest on the dairy farms, where 21 months of labor were used, and lowest on the grain farms, where 10.1 months of labor were used. The dairy farmers evidently utilized a large amount of labor to increase the size of their businesses without increasing the size of their farms.

The labor cost per crop acre ranged from \$27.87 on the dairy farms to \$13.13 on the grain farms; the power and machinery cost per crop acre was highest on the dairy farms, where it averaged \$16.07 and lowest on the grain farms, where it averaged \$10.17; the building cost per acre averaged \$2.60 on the dairy farms and \$1.39 on the grain farms.

Labor, power and machinery, and improvement costs were higher for all sources of income groups in 1946 than in 1945; labor cost per crop acre, for example, was 17 percent higher on the grain farms in 1946 than in 1945.

TABLE 7.—SOURCE OF INCOME RELATED TO FARM EARNINGS AND OTHER FACTORS
FOR 258 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2 AND 3, 1946

Item	Source of Income				
	Grain 40% +	Dairy sales 40% +	Hogs 40% +	Hogs and cattle 60% + ^a	General farms
Number of farms.....	35	18	93	59	53
Percent of income from productive livestock....	36.2	93.7	83.3	88.6	77.2
Percent of income from crops.....	60.1	2.2	12.6	7.4	19.0
Investments					
Total per farm.....	\$43 724	\$27 236	\$33 263	\$40 717	\$41 163
Total per acre.....	167	164	170	181	187
Land per acre.....	109	65	93	92	95
Land improvements per acre.....	3.72	4.41	3.49	3.77	4.58
Buildings per acre.....	14.01	32.02	20.06	19.54	21.48
Machinery per acre ^b	12.04	15.19	13.08	13.85	12.98
Earnings					
Per farm					
Gross earnings.....	\$14 476	\$12 508	\$13 039	\$15 129	\$15 324
Gross expenses ^c	5 863	6 419	5 791	6 550	6 663
Net earnings.....	\$ 8 613	\$ 6 089	\$ 7 248	\$ 8 579	\$ 8 661
Per acre					
Gross earnings.....	\$ 55.43	\$ 75.31	\$ 66.80	\$ 67.30	\$ 69.54
Gross expenses ^c	22.45	38.65	29.66	29.14	30.24
Net earnings.....	\$ 32.98	\$ 36.66	\$ 37.14	\$ 38.16	\$ 39.30
Rate earned on investment (percent).....	19.7	22.4	21.8	21.1	21.0
Labor and management earnings.....	\$ 7 942	\$ 6 280	\$ 7 081	\$ 8 046	\$ 8 083
Size and Intensity					
Acres per farm.....	261	166	195	225	220
Percent of land area tillable.....	84.1	74.5	78.2	78.8	84.2
Percent tillable land in grain.....	78.3	54.8	71.9	65.7	70.6
Percent tillable land in hay and pasture.....	16.9	39.0	26.1	31.4	24.7
Feed fed per acre to productive livestock.....	\$ 15.34	\$ 37.50	\$ 35.67	\$ 39.43	\$ 35.07
Months of labor per 100 crop acres.....	10.1	21.0	14.6	14.2	13.7
Total months of labor.....	20.0	21.0	18.8	20.7	21.8
Crop Yields per Acre					
Corn, bu.....	68.5	66.3	66.1	68.4	65.0
Livestock Returns					
Per \$100 feed fed.....	\$137	\$194	\$161	\$155	\$157
Hog returns per litter.....	273	302	319	306	303
Dairy returns per cow milked.....	188	317	206	182	249
Expense Factors					
Labor cost per crop acre ^c	\$ 13.13	\$ 27.87	\$ 18.70	\$ 18.58	\$ 17.59
Power and machinery cost per crop acre.....	10.17	16.07	12.61	12.93	12.22
Land improvement cost per acre.....	1.27	1.83	1.31	1.39	1.54
Building cost per acre.....	1.39	2.60	1.76	1.87	1.95
Land tax per acre.....	1.25	1.38	1.27	1.21	1.29

^a Not less than 20% from either source.

^b Machinery includes farm share of automobile.

^c Expenses include operator's and family's labor.

Size of farm. When the farm records in Farming-Type Areas 2 and 3 are sorted according to the total acres in the farm (Table 8), they indicate that the operators on the largest farms took in more money during the year than did those on the smallest ones; and after deductions were made for farm business expenditures and interest on the investment, the 20 largest farms had labor and management earnings which averaged \$13,925 contrasted with \$4,784 for the 31 smallest farms. The latter had higher investments an acre for improvements, machinery, and total investment, indicating a higher capital input. The rate earned on investment, however, was not significantly different for the various size groups.

TABLE 8.—SIZE OF FARM RELATED TO FARM EARNINGS AND OTHER FACTORS
FOR 258 ACCOUNTING FARMS IN FARMING-TYPE AREAS 2 AND 3, 1946

Item	Total acres in farm				
	Less than 121	121 to 200	201 to 280	281 to 360	361 or more
Number of farms.....	31	109	74	24	20
Acres per farm.....	104	162	239	323	443
Acres in crops.....	74	115	160	221	289
Investments					
Total per farm.....	\$21 025	\$30 684	\$39 917	\$51 929	\$75 037
Total per acre.....	201	189	167	161	170
Land per acre.....	97	100	90	93	93
Land improvements per acre.....	5.35	4.11	3.97	3.09	3.37
Buildings per acre.....	24.90	21.45	19.59	13.93	19.58
Machinery per acre ^a	18.11	15.45	12.55	10.76	10.23
Earnings					
Per farm					
Gross earnings.....	\$ 8 567	\$12 201	\$14 522	\$19 034	\$ 26 115
Gross expenses ^b	4 267	5 556	6 360	7 935	9 995
Net earnings.....	\$ 4 300	\$ 6 645	\$ 8 162	\$11 099	\$16 120
Per acre					
Gross earnings.....	\$ 81.99	\$ 75.09	\$ 60.82	\$ 58.89	\$ 59.01
Gross expenses ^b	40.84	34.19	26.64	24.55	22.58
Net earnings.....	\$ 41.15	\$ 40.90	\$ 34.18	\$ 34.34	\$ 36.43
Rate earned on investment (percent).....	20.4	21.7	20.4	21.4	21.5
Labor and management earnings.....	\$ 4 784	\$ 6 615	\$ 7 633	\$10 001	\$13 925
Size and Intensity					
Percent of land area tillable.....	84.4	84.7	78.0	80.7	74.7
Percent tillable land in grain.....	64.6	69.1	71.0	70.0	74.8
Percent tillable land in hay and pasture.....	31.3	27.9	25.4	25.1	22.5
Feed fed per acre to productive livestock.....	\$ 41.93	\$ 37.54	\$ 31.54	\$ 27.40	\$ 29.61
Percent of income from productive livestock.....	86.5	80.7	79.5	64.5	71.1
Percent of income from crops.....	8.2	15.0	16.8	31.7	26.1
Months of labor per 100 crop acres.....	19.6	15.6	13.2	11.3	10.9
Total months of labor.....	14.6	17.9	21.2	25.0	31.6
Crop Yields per Acre					
Corn, bu.....	70.3	66.9	66.0	66.2	67.1
Expense Factors					
Labor cost per crop acre.....	\$ 25.70	\$ 19.83	\$ 17.05	\$ 14.57	\$ 15.11
Power and machinery cost per crop acre.....	16.00	13.57	12.00	11.02	9.94
Land improvements cost per acre.....	1.72	1.68	1.39	1.29	.85
Buildings cost per acre.....	2.38	1.93	1.69	1.28	2.00
Land tax per acre.....	1.47	1.35	1.24	1.11	1.18

^a Machinery includes farm share of automobile.^b Expenses include operator's and family's labor.

In 1946, the smaller farms were operated more intensively than were the larger ones. This is indicated by the higher gross earnings an acre, by the larger labor and capital inputs an acre, and by the larger value of feed fed an acre to productive livestock.

The method used to increase the volume of business depended upon the individual farm. Some farm operators apparently increased the volume of their businesses by improving the quality and increasing the amount of livestock; others, by growing more intensive crops, by increasing crop yields, or by developing special markets; still others, by increasing the acreage operated or by applying combinations of the above methods.

As the size of farms increased from the smallest to the largest size group the labor cost per crop acre decreased much more than the power

TABLE 9.—LABOR COST AND POWER AND MACHINERY COST PER CROP ACRE FOR
DIFFERENT SIZE FARMS AND DIFFERENT AMOUNTS OF FEED FED
PER ACRE TO PRODUCTIVE LIVESTOCK
(Accounting Farms in Farming-Type Area 3, 1946)

Acres per farm	Feed fed per acre				Feed fed per acre			
	Less than \$16.00	\$16.00 to \$23.99	\$24.00 to \$31.99	\$32.00 or more	Less than \$16.00	\$16.00 to \$23.99	\$24.00 to \$31.99	\$32.00 or more
	(Labor cost per crop acre)				(Power and machinery cost per crop acre)			
Less than 121.....	\$18.00	\$19.50	\$20.50	\$21.00	\$11.50	\$12.20	\$14.00	\$16.40
121 to 200.....	16.20	18.10	19.50	20.70	10.60	11.10	12.40	15.10
201 to 280.....	15.50	16.50	17.00	19.50	10.00	10.40	11.40	13.00
281 to 360.....	13.00	14.00	16.10	17.60	9.50	9.80	11.00	11.80
361 or more.....	12.10	13.00	14.50	15.00	9.00	9.40	10.60	11.00

and machinery cost per crop acre. For example, with farms feeding \$20 worth of feed per acre, the labor cost per crop acre decreased from \$19.50 to \$13.00 and power and machinery cost decreased from \$12.20 to \$9.40. In the former case the decrease was \$6.50, but in the latter it was only \$2.80. If labor cost had been lower in relation to power and machinery cost, the difference would not have been so great. The comparison shows that the adjustment to size of farm business presents a bigger problem in connection with labor than with power and machinery. In 1946, labor cost per crop acre was higher than power and machinery cost for each farm size group.

Four other significant things are apparent in this table: (1) costs per crop acre increased as the size of the farms decreased; (2) costs increased as the amount of feed fed per acre increased; (3) costs (especially labor costs) decreased much less rapidly when large farms were increased in size than when small ones were increased (this situation is explained in part by the fact that dairy cattle and poultry predominate on the smaller farms and that beef cattle predominate on the larger farms); and (4) labor costs increased rapidly as the feed fed increased from less than \$16.00 to \$32.00 or more per acre.

Farmers who know what their costs for labor and for power and machinery expense per crop acre were in 1946 will find that these data contain a basis for comparing their expenses with averages for other farms of the same size and with the same intensity of livestock.¹

Crop returns. The combined influence of crop yields, intensity of the cropping system, the price received for crops sold, and the price charged for crops fed to livestock is expressed in the crop returns per

¹ Data for other areas of Illinois are available in the area reports for 1946.

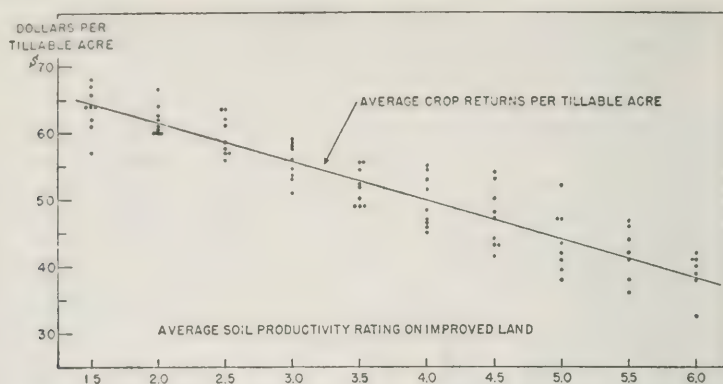


FIG. 5.—AVERAGE CROP RETURNS PER TILLABLE ACRE FOR EACH OF THE NINE FARM BUREAU FARM MANAGEMENT SERVICE AREAS IN FARMING-TYPE AREAS 1, 2, 3, 4, AND 5, 1946

tillable acre in Figure 5. The crop returns, in other words, are the gross return from all crop and feed enterprises including pasture on tillable land. They varied from a high of \$68 per tillable acre for soils rated 1.5 to a low of \$32.50 for soils rated 6.0. The crop returns in 1946 increased about \$5.75 for each unit increase in soil productivity rating. This relationship varied from area to area and from one kind of soil to another according to differences in the amounts and utilization of hay and pasture crops and in the amounts of fertilizers and animal manures that were used as a part of the cropping system and soil fertility program.

New Techniques in Farm Accounting

New account book. A new type of farm account book, the Illinois Farm Business Record, was used in the Illinois Valley and West-Central Farm Bureau Farm Management Service areas. Because of some changes in the classification and content of the accounts in the new book, not all of the data for these counties are fully comparable with the data for the other counties or for previous years.

The greatest change in classification was made in shifting tile and fencing from land improvements to the farm buildings account. The land improvements account thus becomes strictly a soil improvement account while the buildings account includes all structural improvements. The most significant changes are improvements in the mechanics of keeping, summarizing, and using the book.

New method of analysis. Figure 6 illustrates the new input-return method of analysis used in conjunction with the Illinois Farm Business

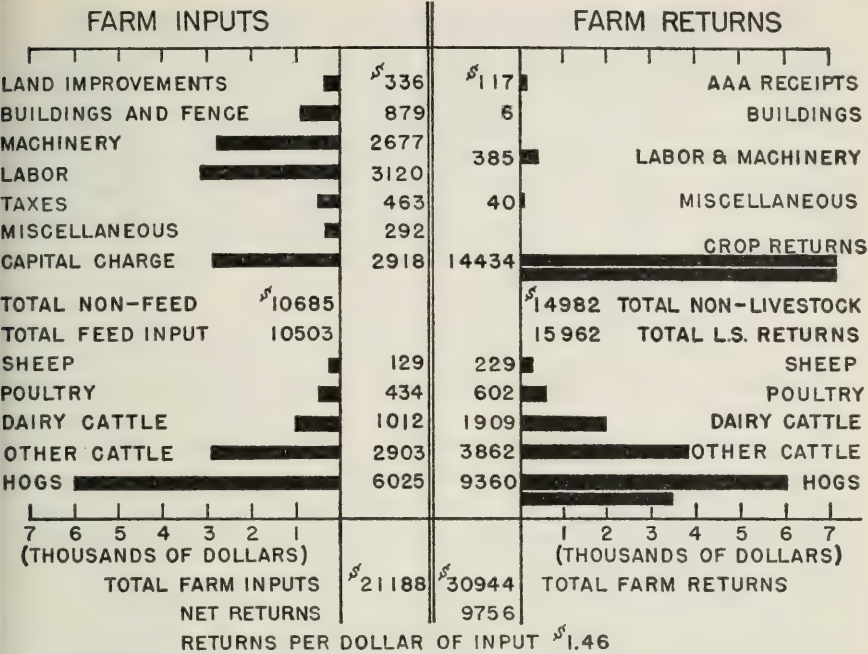


FIG. 6.—FARM ORGANIZATION, VOLUME OF BUSINESS, AND EFFICIENCY OF OPERATION AS SHOWN BY AVERAGE INPUTS AND RETURNS ON 272 FARMS IN THE ILLINOIS VALLEY AND WEST-CENTRAL FARM BUREAU FARM MANAGEMENT SERVICE AREAS IN 1946

Record book. The method uses the crop returns to place returns from the crop enterprises on the farm in a comparable position to the gross returns from livestock. The net returns are the implied returns to management. By adding the capital charge to the net returns, we get, "Returns to Capital and Management," more commonly known as "Net Farm Earnings."

The returns per dollar of input is an over-all measure of profitability and efficiency of operation. It will rank the farms in much the same way as rate earned on the investment.

All of the input and return figures in this analysis are taken directly from the Illinois Farm Business Record book. Averages of all farms, such as in Figure 6, or averages for groups of farms of like size and type can readily be used as standards for comparison.

Analysis of Farm Leases

The analysis of farm leases in Table 10 is based on the general principle that a farm lease is equitable when the landlord and tenant share in the

TABLE 10.—GROSS INCOME, TOTAL INPUT, AND INCOME PER \$100 INPUT FOR LANDLORD AND TENANT; ACCOUNTING FARMS, 1946^a

	Rented ^b farms	Gross income		Total input		Income per \$100 input ^c	
		Tenant	Landlord	Tenant	Landlord	Tenant	Landlord
Area 2	51	\$9,459	\$5,759	\$6,178	\$3,318	\$ 153	\$ 173
Area 3	55	9,412	5,891	5,762	2,870	163	205
Area 4	65	9,007	5,860	5,421	3,247	184	181
Area 5	35	9,553	5,385	5,291	2,745	181	193
Area 6	55	6,703	1,915	4,630	1,374	145	139

^a Records from state-wide extension project.

^b Part rented farms excluded.

^c Income and expenses on farm dwelling omitted.

gross income in proportion to the value of their inputs, often called contributions.

In making this analysis "Expenses and Net Decreases," as used in the farm account book, were added to the value of unpaid labor and interest on the investment to get total inputs, and "Receipts and Net Increase" was considered gross income. The analysis was limited to areas with large numbers of all rented farms.

Book values of real estate were adjusted to bring them in line with 1946 market values. These adjustments considered an 81-percent increase in market price of land in Illinois from 1935-1939 to 1946, and changes that account keepers had made in their real estate valuations.

The rental value of the residence was not included in the tenant's gross income nor in the landlord's total input because the records did not furnish sufficient information to make this computation. Had this item been included, the comparisons would be more favorable to tenants and less favorable to landlords than is shown in Table 10.

Also excluded from the computations is the value of management of both tenant and landlord, because there is no satisfactory basis for evaluating management. If groups of tenants and landlords contribute management in proportion to the value of their other inputs, the exclusion of this item does not affect final results. It should be recognized, however, that there are wide variations in the value of management contributed by individual tenants and landlords.

The table shows that tenants in areas 4 and 6 received slightly more income per \$100 input than their landlords; but in areas 2, 3, and 5 this situation was reversed. Variations from area to area were due to price relationships, volume of production, kinds of leases, and other factors. Under a different set of conditions than those in 1946 the results would be different. Therefore, these results should not be considered conclusive. For further information about farm leases see *Illinois Farm Economics*, May, 1947.

Data for Counties and Groups of Counties

Averages were calculated for each county with sufficient records to give significant averages and for groups of counties with small numbers of records. These averages are arranged in Table 13 according to farming-type areas. Counties or groups of counties in Area 1 come first in the list, and those in Area 9 at the end of it. For summaries by farming-type areas see Tables 11 and 12.

TABLE 11.—INVESTMENTS, CASH RECEIPTS, CASH EXPENSES, AND INVENTORY CHANGES
AVERAGES PER FARM BY FARMING-TYPE AREAS, 1946

Item	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Capital investment, total.....	\$45 636	\$35 687	\$44 897	\$52 777	\$34 413	\$21 504	\$17 091	\$20 151	\$12 878
Land.....	19 948	15 930	25 078	32 051	19 350	11 070	8 338	10 736	6 369
Land improvements.....	881	856	1 007	1 225	871	572	749	684	279
Farm buildings.....	8 933	5 921	4 560	5 195	3 535	2 621	1 795	1 997	1 288
Machinery and equipment*.....	3 234	2 750	3 103	3 214	2 707	2 399	1 603	1 804	1 021
Feed and grain.....	5 068	4 018	4 651	5 756	3 404	2 251	1 583	2 439	1 433
Livestock, total.....	7 572	6 212	6 498	4 436	4 546	2 591	2 523	2 491	2 488
Cash receipts, total.....	\$20 205	\$16 825	\$19 899	\$19 506	\$15 475	\$ 9 443	\$ 7 479	\$ 8 612	\$ 4 639
Feed and grain.....	2 075	1 807	4 597	9 307	4 787	2 758	2 757	2 991	1 071
AAA payments.....	55	86	94	98	87	103	98	111	84
Labor and miscellaneous.....	672	437	574	639	512	308	298	270	152
Livestock, total.....	17 403	14 495	14 634	9 462	10 089	6 274	4 326	5 240	3 332
Horses.....	21	17	25	25	31	30	31	31	78
Cattle.....	6 209	4 763	4 548	3 015	2 278	1 041	1 174	1 401	1 044
Hogs.....	2 990	5 414	8 051	3 997	5 576	1 531	1 526	2 594	1 994
Sheep.....	104	335	541	312	277	125	130	75	65
Poultry and eggs.....	607	791	577	833	570	899	707	662	397
Dairy sales.....	7 472	3 175	892	1 280	1 407	2 648	758	477	754
Cash expenses, total.....	\$13 885	\$10 119	\$11 725	\$10 205	\$ 9 295	\$ 5 744	\$ 4 917	\$ 5 238	\$ 3 356
Land improvements.....	766	467	524	573	572	410	518	602	325
Farm buildings.....	1 058	774	461	542	373	426	200	239	200
Livestock purchases.....	4 387	3 167	3 181	2 323	1 770	675	684	905	599
Feed and grain.....	2 051	1 730	2 674	1 523	2 302	1 329	913	855	474
Machinery and equipment.....	2 838	2 765	2 763	3 072	2 589	1 865	1 673	1 695	1 112
Hired labor.....	1 483	2 705	1 004	1 012	407	418	418	396	284
Crop expense.....	550	344	441	459	349	280	224	220	150
Taxes.....	379	316	423	483	370	226	166	231	157
Livestock and miscellaneous.....	373	231	234	221	189	126	91	95	55
Cash balance.....	\$ 6 320	\$ 6 706	\$ 8 174	\$ 9 301	\$ 6 180	\$ 3 699	\$ 2 562	\$ 3 374	\$ 1 283
Increase in inventory.....	2 003	2 715	3 186	2 574	3 234	1 611	1 911	1 902	1 382
Total unpaid labor.....	1 729	1 996	1 860	1 816	1 883	1 911	1 440	1 468	1 160
Net farm income.....	\$ 6 594	\$ 7 425	\$ 9 500	\$10 059	\$ 7 531	\$ 3 399	\$ 3 033	\$ 3 808	\$ 1 505
Number of farms included.....	96	285	340	921	234	246	120	90	42

* Includes farm share of automobile.

TABLE 12.—FACTORS HELPING TO ANALYZE THE FARM BUSINESS BY FARMING-TYPE AREAS, 1946

Item	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Size of farm, acres.....	206	206	252	276	263	230	282	249	236
Tillable land (percent).....	84	77	80	90	78	82	83	84	67
Inventory basis									
Gross receipts per acre ^a	\$70.66	\$66.68	\$64.91	\$62.47	\$52.38	\$37.15	\$26.31	\$34.20	\$19.90
Total expenses per acre.....	36.25	28.35	25.40	24.35	22.02	20.33	14.03	17.05	11.71
Net receipts per acre.....	\$34.41	\$38.33	\$39.51	\$38.12	\$30.36	\$16.82	\$12.28	\$17.15	\$ 8.19
Cash basis									
Gross receipts per acre.....	\$98.08	\$81.67	\$78.87	\$70.75	\$58.93	\$41.14	\$26.47	\$34.64	\$19.67
Total cash expense per acre ^b	75.79	58.80	53.84	43.60	42.57	33.35	22.50	26.97	19.15
Net cash income per acre.....	\$22.29	\$22.87	\$25.03	\$27.15	\$16.36	\$ 7.79	\$ 3.97	\$ 7.67	\$.52
Acres in: Corn.....	54	58	86	101	67	37	46	59	33
Oats.....	42	38	43	46	30	20	18	9	6
Wheat.....	1	1	2	6	15	40	30	32	10
Soybeans.....	4	3	16	42	38	19	28	17	8
Bushels per acre: Corn.....	56	67	69	67	70	51	48	54	41
Oats.....	57	53	49	45	40	35	26	28	30
Wheat.....	24	25	25	22	16	17	15	15	12
Soybeans.....	19	23	30	26	26	21	19	20	20
Value of feed fed to livestock.....	\$9 127	\$7 980	\$8 726	\$5 799	\$6 504	\$3 828	\$2 774	\$3 353	\$2 257
Returns per \$100 feed fed.....	157	163	150	148	153	164	165	160	168
Feed fed per acre to livestock.....	44.31	38.74	34.59	21.03	24.76	16.68	9.82	13.49	9.57
Returns per acre from livestock.....	69.64	63.00	52.13	31.19	40.20	27.42	16.19	21.62	16.08
Power and machinery cost per crop acre.....	\$15.21	\$13.74	\$12.52	\$10.72	\$11.54	\$10.67	\$ 8.06	\$ 9.74	\$10.64
Labor cost per crop acre.....	21.20	20.01	16.50	12.79	15.30	15.48	11.29	12.50	16.45
Value of land per acre.....	\$ 97	\$ 77	\$ 99	\$ 120	\$ 74	\$ 48	\$ 31	\$ 43	\$ 27
Value of land improvements per acre.....	4	4	4	4	2	2	3	3	1
Value of buildings per acre.....	43	29	18	19	13	11	6	8	5
Total investment per acre.....	222	173	178	191	131	94	60	81	55
Number of farms included.....	96	285	340	921	234	246	120	90	42

^a Farm products used in household included.
^b Includes charge for unpaid labor.

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946

Accounting Item		McHenry	Kane	DuPage, Lake, Cook, Boone	Stephen- son
Capital investment, total	1	\$38 817	\$63 475	\$39 680	\$31 902
Land	2	16 103	26 028	18 851	13 158
Land improvements	3	8 842	1 722	428	751
Farm buildings	4	8 154	13 411	6 867	5 944
Horses	5	155	179	160	169
Cattle	6	4 935	8 838	5 125	3 587
Hogs	7	539	2 177	849	1 498
Sheep	8	5	13	121	49
Poultry	9	186	236	192	217
Feed and grain	10	4 923	6 666	4 248	3 740
Machinery and equipment	11	2 975	4 205	2 839	2 789
Income, net increases, total	12	\$14 705	\$18 472	\$12 799	\$13 747
Cattle	13	1 024	5 550	1 839	2 076
Dairy sales	14	10 300	5 311	6 963	4 764
Hogs	15	2 170	6 217	2 296	5 276
Sheep	16	2	18	112	61
Poultry and eggs	17	596	486	526	725
Farm products used in household	18	451	573	476	462
Feed and grain	19	.....	194	449	257
AAA payment	20	66	39	58	94
Labor and miscellaneous	21	96	84	80	32
Expenses, net decreases, total	22	\$ 6 979	\$ 6 843	\$ 4 909	\$ 3 597
Land improvements	23	453	679	304	330
Farm buildings	24	732	1 225	590	531
Feed and grain	25	1 532	.....	.....	.....
Machinery and equipment	26	1 945	2 420	1 937	1 559
Hired labor	27	1 572	1 622	1 349	606
Taxes	28	345	413	382	298
Livestock and miscellaneous	29	400	484	347	273
Receipts less expenses	30	\$ 7 726	\$11 629	\$ 7 890	\$10 150
Unpaid labor	31	1 664	1 872	1 688	2 045
Net farm earnings	32	\$ 6 062	\$ 9 757	\$ 6 202	\$ 8 105
Rate earned on investment, percent	33	15.6	15.4	15.6	25.4
Labor and management earnings	34	\$ 5 399	\$ 8 039	\$ 5 580	\$ 8 002
Excess of sales over expenses	35	5 438	8 353	5 707	6 894
Increase in inventory	36	1 837	2 703	1 707	2 794
Number of farms included	37	27	25	44	60
Size of farm, acres	38	199	224	200	182
Gross earnings per acre	39	\$ 73.86	\$ 82.28	\$ 64.09	\$ 75.53
Total expenses per acre	40	43.41	38.82	33.03	31.00
Net earnings per acre	41	\$ 30.45	\$ 43.46	\$ 31.06	\$ 44.53
Value of land per acre	42	\$ 81	\$116	\$ 94	\$ 72
Value of improved land per acre	43	82	119	99	78
Value of buildings per acre	44	40.95	59.74	34.39	32.66
Total investment per acre	45	195	283	199	175
Percent of land area tillable	46	80.6	89.5	83.4	80.8
Percent of tillable land in:					
Corn	47	38.2	48.8	37.2	34.6
Oats	48	20.3	24.7	25.3	25.4
Wheat	49	.1	.3	1.0	.3
Soybeans for grain	50	.2	2.8	3.3	1.3
Other cultivated crops	51	.5	2.8	1.8	1.7
Hay and pasture	52	40.7	20.6	31.4	36.7
Bushels per acre: Corn	53	48.0	66.1	49.7	69.1
Oats	54	55.4	61.3	54.2	54.8
Wheat	55	25.0	36.0	24.4	32.0
Soybeans	56	12.5	23.0	17.3	19.0
Feed fed per acre	57	\$ 41.76	\$ 57.15	\$ 37.64	\$ 40.77
Returns for \$100 feed fed	58	174	141	161	179
Number of litters farrowed	59	13	32	12	16
Returns per litter	60	\$310	\$318	\$369	\$332
Dairy returns per cow	61	340	359	354	289
Egg returns per hen	62	4.74	4.09	4.68	4.26
Power and machinery cost per crop acre	63	\$ 16.39	\$ 14.92	\$ 14.71	\$ 14.20
Labor cost per crop acre	64	24.08	19.67	20.62	21.67
Land improvements cost per acre	65	2.28	3.02	1.52	1.81
Farm buildings cost per acre	66	3.68	5.46	2.95	2.92
Taxes per acre	67	1.36	1.52	1.66	1.26

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—Continued

	Ogle	Rock Island	Winne- bago	White- side	Jo Davies	Carroll	Henry	McDon- ough
1	\$37 044	\$29 405	\$36 573	\$34 521	\$30 058	\$35 146	\$43 804	\$43 126
2	16 600	14 096	14 165	14 979	12 279	17 261	23 456	25 587
3	720	562	1 166	841	849	700	999	975
4	5 888	4 436	7 967	6 094	5 454	5 137	4 715	4 147
5	172	141	151	147	254	232	91	113
6	4 406	2 221	4 154	2 967	4 140	3 728	3 379	2 302
7	1 908	1 607	1 601	2 378	1 488	1 556	3 092	2 654
8	45	100	43	159	121	51	242	68
9	174	189	188	140	234	265	156	194
10	4 423	3 404	4 299	4 388	2 799	3 614	4 726	4 121
11	2 708	2 649	2 839	2 428	2 440	2 602	2 948	2 965
12	\$13 545	\$11 696	\$13 926	\$13 735	\$13 540	\$12 171	\$16 868	\$16 350
13	3 227	1 975	2 653	1 747	2 529	2 872	3 323	1 983
14	2 483	1 642	4 748	2 307	3 951	2 326	1 014	736
15	5 397	5 627	5 170	7 326	5 644	5 393	10 155	8 990
16	49	129	33	108	139	64	342	48
17	613	769	682	406	709	947	620	703
18	463	570	446	471	481	482	480	469
19	1 144	768	75	1 262	.....	.....	801	3 306
20	107	95	83	73	79	82	103	82
21	62	121	36	35	8	5	30	33
22	\$ 3 827	\$ 3 357	\$ 4 043	\$ 3 872	\$ 4 725	\$ 3 570	\$ 4 682	\$ 4 148
23	362	284	474	489	315	297	367	272
24	461	521	582	475	522	507	509	456
25	.....	.....	.....	.....	803	32	.....	.....
26	1 677	1 479	1 622	1 756	1 504	1 572	1 982	2 015
27	740	559	761	630	913	608	1 085	675
28	332	327	323	280	287	316	472	422
29	255	187	281	242	381	238	267	308
30	\$ 9 718	\$ 8 339	\$ 9 883	\$ 9 863	\$ 8 815	\$ 8 601	\$12 186	\$12 202
31	1 995	1 939	2 003	1 876	1 990	2 052	1 850	2 030
32	\$ 7 723	\$ 6 400	\$ 7 880	\$ 7 987	\$ 6 825	\$ 6 549	\$10 336	\$10 172
33	20.8	21.8	21.6	23.1	22.7	18.6	23.6	23.6
34	\$ 7 335	\$ 6 379	\$ 7 541	\$ 7 708	\$ 6 701	\$ 6 315	\$10 627	\$ 9 447
35	6 842	5 761	6 706	7 016	4 862	5 519	8 730	7 717
36	2 413	2 008	2 731	2 376	3 472	2 600	2 976	4 016
37	43	28	27	31	36	14	50	47
38	212	181	220	192	252	220	231	226
39	\$ 63.98	\$ 64.62	\$ 63.18	\$ 71.42	\$ 53.67	\$ 55.37	\$ 73.02	\$ 72.25
40	27.50	29.26	27.43	29.89	26.62	25.57	28.28	27.30
41	\$ 36.48	\$ 35.36	\$ 35.75	\$ 41.53	\$ 27.05	\$ 29.80	\$ 44.74	\$ 44.95
42	\$ 78	\$ 78	\$ 64	\$ 78	\$ 49	\$ 79	\$102	\$113
43	88	86	71	86	62	90	110	122
44	27.81	24.51	36.15	31.69	21.62	23.37	20.41	18.32
45	175	162	166	180	119	160	190	191
46	77.8	76.7	78.4	79.3	54.6	74.6	81.6	85.1
47	39.5	45.9	39.4	41.6	31.9	37.3	45.1	44.3
48	25.8	20.5	25.4	21.1	22.5	22.9	21.6	22.9
49	.3	.2	.5	3.0	.4	.4	1.1	.9
50	2.2	1.8	.5	4.7	.1	.6	4.6	9.4
51	1.5	1.5	.8	3.4	1.4	2.2	.1	2.1
52	30.7	30.1	33.4	26.2	43.7	36.6	27.5	20.4
53	66.2	70.3	61.6	69.9	68.0	65.9	68.8	73.8
54	56.0	45.4	49.0	49.8	47.8	52.5	52.8	46.1
55	18.0	26.7	14.4	25.3	26.0	22.8	28.0	26.5
56	27.2	23.2	10.0	20.8	20.0	25.6	32.7	32.2
57	\$ 36.36	\$ 38.40	\$ 38.12	\$ 41.89	\$ 30.76	\$ 34.35	\$ 44.26	\$ 37.62
58	158	153	163	153	172	159	155	151
59	21	21	18	21	14	19	31	34
60	\$276	\$295	\$310	\$344	\$333	\$297	\$275	\$274
61	268	222	308	272	259	250	214	172
62	5.13	5.35	4.29	3.85	3.99	4.31	4.19	4.66
63	\$ 13.62	\$ 13.89	\$ 12.24	\$ 14.60	\$ 15.59	\$ 13.99	\$ 13.37	\$ 12.42
64	19.68	20.95	18.78	18.89	25.70	20.60	18.59	15.92
65	1.71	1.57	2.15	2.54	1.25	1.35	1.59	1.20
66	2.18	2.88	2.64	2.47	2.07	2.31	2.20	2.02
67	1.20	1.53	1.17	1.05	.92	1.05	1.67	1.47

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—*Continued*

Accounting Item		Knox	Peoria	Fulton	Hender- son, Hancock
Capital investment, total.....	1	\$49 051	\$48 564	\$35 200	\$45 217
Land.....	2	28 009	27 185	19 166	25 588
Land improvements.....	3	1 263	1 188	743	927
Farm buildings.....	4	4 739	5 402	4 275	4 148
Horses.....	5	110	117	137	143
Cattle.....	6	3 481	2 767	2 407	3 793
Hogs.....	7	2 392	2 665	2 016	2 766
Sheep.....	8	215	141	317	93
Poultry.....	9	101	175	151	107
Feed and grain.....	10	5 721	5 607	3 336	4 462
Machinery and equipment.....	11	3 020	3 317	2 652	3 190
Income, net increases, total.....	12	\$17 507	\$17 209	\$12 908	\$16 767
Cattle.....	13	2 569	2 303	1 467	4 031
Dairy sales.....	14	1 227	952	1 212	546
Hogs.....	15	8 127	9 125	6 825	7 768
Sheep.....	16	132	58	380	108
Poultry and eggs.....	17	342	709	619	361
Farm products used in household.....	18	494	481	473	451
Feed and grain.....	19	4 488	3 363	1 736	3 383
AAA payment.....	20	98	87	86	69
Labor and miscellaneous.....	21	30	131	110	50
Expenses, net decreases, total.....	22	\$ 5 057	\$ 4 611	\$ 3 841	\$ 5 110
Land improvements.....	23	407	427	230	394
Farm buildings.....	24	570	471	485	496
Feed and grain.....	25	.....	.....	26	.....
Machinery and equipment.....	26	2 162	1 765	1 748	2 311
Hired labor.....	27	1 201	1 230	718	1 214
Taxes.....	28	432	409	354	452
Livestock and miscellaneous.....	29	285	309	280	243
Receipts less expenses.....	30	\$12 450	\$12 598	\$ 9 067	\$11 657
Unpaid labor.....	31	1 908	1 779	2 013	1 778
Net farm earnings.....	32	\$10 542	\$10 819	\$ 7 054	\$ 9 879
Rate earned on investment, percent.....	33	21.5	22.3	20.0	21.8
Labor and management earnings.....	34	\$ 9 547	\$ 9 766	\$ 6 791	\$ 9 105
Excess of sales over expenses.....	35	8 843	10 094	5 615	7 333
Increase in inventory.....	36	3 113	2 023	2 979	3 873
Number of farms included.....	37	39	28	27	55
Size of farm, acres.....	38	300	253	238	273
Gross earnings per acre.....	39	\$ 58.39	\$ 67.91	\$ 54.12	\$ 61.33
Total expenses per acre.....	40	23.23	25.21	24.54	25.20
Net earnings per acre.....	41	\$ 35.16	\$ 42.70	\$ 29.58	\$ 36.13
Value of land per acre.....	42	\$ 93	\$107	\$ 80	\$ 94
Value of improved land per acre.....	43	113	119	99	106
Value of buildings per acre.....	44	15.81	21.32	17.92	15.17
Total investment per acre.....	45	164	192	148	165
Percent of land area tillable.....	46	73.2	83.5	67.6	78.5
Percent of tillable land in:					
Corn.....	47	39.3	41.2	41.3	42.3
Oats.....	48	21.5	21.2	18.4	18.6
Wheat.....	49	1.1	.7	1.5	2.8
Soybeans for grain.....	50	9.3	9.3	8.7	12.6
Other cultivated crops.....	51	1.3	5.1	2.1	1.1
Hay and pasture.....	52	27.5	22.5	28.0	22.6
Bushels per acre:					
Corn.....	53	69.3	67.2	70.1	70.2
Oats.....	54	52.2	52.6	42.5	43.6
Wheat.....	55	24.0	30.7	20.8	21.4
Soybeans.....	56	27.9	28.8	25.5	30.4
Feed fed per acre.....	57	\$ 27.47	\$ 37.04	\$ 30.48	\$ 33.59
Returns for \$100 feed fed.....	58	156	144	150	144
Number of litters farrowed.....	59	28	31	25	29
Returns per litter.....	60	\$324	\$302	\$294	\$290
Dairy returns per cow.....	61	206	216	188	168
Egg returns per hen.....	62	4.18	5.48	3.40	3.62
Power and machinery cost per crop acre.....	63	\$ 12.37	\$ 10.39	\$ 14.16	\$ 13.30
Labor cost per crop acre.....	64	16.87	15.75	19.77	15.94
Land improvements cost per acre.....	65	1.36	1.68	.96	1.44
Farm buildings cost per acre.....	66	1.90	1.86	2.03	1.81
Taxes per acre.....	67	1.19	1.35	1.20	1.23

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—Continued

	Mercer	Bureau	Marshall-Putnam	Lee	DeKalb	LaSalle	Kendall	Grundy
1	\$38 861	\$54 086	\$69 597	\$55 042	\$68 778	\$62 609	\$60 498	\$47 900
2	20 567	29 286	39 739	29 644	34 817	35 520	30 235	28 195
3	996	727*	670*	696*	549*	775*	829*	383*
4	3 835	7 648*	8 324*	8 859*	12 600*	9 291*	10 095*	6 548*
5	142	83	100	100	183	86	117	105
6	4 156	4 064	4 295	3 295	6 306	3 912	4 501	1 787
7	2 602	2 903	4 193	1 896	2 489	1 915	3 386	943
8	37	146	345	304	41	120	330	27
9	99	180	127	111	139	174	282	147
10	3 574	5 669	8 062	6 575	7 595	7 064	7 038	6 891
11	2 853	3 380	3 742	3 562	4 059	3 752	3 685	2 874
12	\$14 300	\$17 513*	\$25 010*	\$17 631*	\$21 896*	\$18 981*	\$20 899*	\$18 463*
13	2 260	3 940	4 879	2 681	6 755	2 798	4 731	1 362
14	704	1 032	1 206	2 354	1 600	1 475	2 354	2 882
15	8 489	9 857	15 440	6 085	9 244	6 636	10 290	4 198
16	87	128	394	155	36	188	313	11
17	231	537	331	448	470	542	1 210	587
18	455	482	510	352	530	489	532	377
19	1 939	1 365	2 048	5 310	3 129	6 660	1 325	8 831
20	99	109	123	170	74	98	99	142
21	36	63	79	76	58	95	45	73
22	\$ 4 611	\$ 4 608	\$ 5 743	\$ 4 648	\$ 6 643	\$ 5 394	\$ 5 230	\$ 5 010
23	272	232*	258*	359*	444*	312*	408*	713*
24	476	859*	827*	802*	1 117*	977*	1 054*	749*
25	.....	.....	.....	.....	.....	.....	.....	.....
26	2 086	1 848*	2 514*	2 022*	2 597*	2 260*	1 630*	2 163*
27	1 043	932	1 220	826	1 668	1 081	1 350	787
28	491	428	585	371	467	457	416	358
29	243	309*	339*	268*	350*	307*	372*	240*
30	\$ 9 689	\$12 905	\$19 267	\$12 983	\$15 253	\$13 587	\$15 669	\$13 453
31	1 674	1 892	2 303	1 955	1 857	2 008	2 307	2 210
32	\$ 8 015	\$11 013	\$16 964	\$11 028	\$13 396	\$11 579	\$13 362	\$11 243
33	20.6	20.4	24.4	20.0	19.5	18.5	22.1	23.5
34	\$ 7 540	\$ 9 647	\$14 951	\$ 9 764	\$11 332	\$ 9 905	\$11 839	\$10 399
35	6 627	8 081	14 686	9 035	11 066	9 964	11 539	10 970
36	2 607	4 342	4 071	3 596	3 657	3 134	3 598	2 106
37	18	20	28	27	38	45	18	15
38	260	247	352	251	272	282	246	299
39	\$ 54.89	\$ 70.90*	\$ 71.05*	\$ 70.24*	\$ 80.50*	\$ 67.31*	\$ 84.96*	\$ 61.74*
40	24.12	26.31*	22.85*	26.30*	31.24*	26.25*	30.64*	24.14*
41	\$ 30.77	\$ 44.59	\$ 48.20	\$ 43.94	\$ 49.26	\$ 41.06	\$ 54.32	\$ 37.60
42	\$ 79	\$119	\$113	\$118	\$128	\$126	\$123	\$ 94
43	91	128	128	123	131	133	125	109
44	14.72	31*	24*	35*	46*	33*	41*	22*
45	149	219	198	220	253	222	246	160
46	73.8	85.0	79.0	87.9	91.3	87.6	92.2	82.7
47	45.9	44	43	45	44	44	49	45
48	21.7	23	22	24	26	28	21	21
49	.4	1	3	1	.....	.....	1	.....
50	1.8	5	7	6	7	5	4	14
51	.4	.....	.....	.....	1	.....	.....	.....
52	29.8	27	25	24	21	23	25	18
53	65.3	66.4	62.9	70.0	66.6	65.5	63.8	63.2
54	44.3	58.8	56.4	55.7	59.9	54.4	56.3	51.8
55	12.5	30.0	30.6	42.4	32.0	32.8	30.3	.....
56	34.0	27.9	27.5	27.1	23.4	28.5	22.2	23.3
57	\$ 30.80	\$ 43.94	\$ 42.48	\$ 32.75	\$ 47.73	\$ 27.99	\$ 51.88	\$ 19.10
58	151	147	152	147	143	153	153	166
59	30	(a)	(a)	(a)	(a)	(a)	(a)	(a)
60	\$291	(a)	(a)	(a)	(a)	(a)	(a)	(a)
61	203	(a)	(a)	(a)	(a)	(a)	(a)	(a)
62	3.00	(a)	(a)	(a)	(a)	(a)	(a)	(a)
63	\$ 13.90	\$ 12.05*	\$ 11.89*	\$ 11.33*	\$ 12.99*	\$ 11.33*	\$ 9.05*	\$ 10.89*
64	16.72	16.38	15.16	14.80	16.22	14.73	19.02	14.20
65	1.04	.94*	.73*	1.43*	1.63*	1.11*	1.66*	2.38*
66	1.83	3.48*	2.35*	3.20*	4.11*	3.46*	4.28*	2.50*
67	1.47	(a)	(a)	(a)	(a)	(a)	(a)	(a)

* These data are from the Illinois Farm Business Record and are not entirely comparable with other data.

* Not available.

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—*Continued*

Accounting Item	Warren	Stark	McLean	Tazewell
Capital investment, total.....	1 \$46 668	\$46 162	\$62 155	\$51 498
Land.....	2 26 878	25 554	37 819	30 206
Land improvements.....	3 691	977	1 271	1 342
Farm buildings.....	4 4 888	4 423	6 532	5 348
Horses.....	5 142	37	102	92
Cattle.....	6 3 539	2 584	3 413	2 725
Hogs.....	7 2 808	2 687	1 889	1 866
Sheep.....	8 63	1 364	139	488
Poultry.....	9 127	157	204	166
Feed and grain.....	10 4 494	4 663	7 305	6 141
Machinery and equipment.....	11 3 038	3 716	3 481	3 124
Income, net increases, total.....	12 \$16 849	\$15 602	\$19 758	\$17 672
Cattle.....	13 3 505	1 866	2 227	1 893
Dairy sales.....	14 500	874	1 434	1 355
Hogs.....	15 8 331	6 510	6 436	5 930
Sheep.....	16 116	1 216	165	449
Poultry and eggs.....	17 431	421	683	616
Farm products used in household.....	18 437	507	415	502
Feed and grain.....	19 3 387	3 937	8 248	6 771
AAA payment.....	20 86	136	87	100
Labor and miscellaneous.....	21 56	135	63	56
Expenses, net decreases, total.....	22 \$ 4 272	\$ 4 428	\$ 5 942	\$ 4 795
Land improvements.....	23 266	340	388	379
Farm buildings.....	24 513	478	678	553
Feed and grain.....	25 .....	.....	.....	.....
Machinery and equipment.....	26 2 017	1 936	2 593	2 124
Hired labor.....	27 833	1 039	1 421	965
Taxes.....	28 382	420	532	524
Livestock and miscellaneous.....	29 261	215	330	250
Receipts less expenses.....	30 \$12 577	\$11 174	\$13 816	\$12 877
Unpaid labor.....	31 1 768	1 699	1 749	1 777
Net farm earnings.....	32 \$10 809	\$ 9 475	\$12 067	\$11 100
Rate earned on investment, percent.....	33 23.2	20.5	19.4	21.6
Labor and management earnings.....	34 \$ 9 984	\$ 8 548	\$10 373	\$10 026
Excess of sales over expenses.....	35 7 578	10 593	10 275	10 598
Increase in inventory.....	36 4 562	74	3 126	1 777
Number of farms included.....	37 31	20	76	66
Size of farm, acres.....	38 260	231	292	248
Gross earnings per acre.....	39 \$ 64.78	\$ 67.42	\$ 67.55	\$ 71.29
Total expenses per acre.....	40 23.22	26.47	26.29	26.51
Net earnings per acre.....	41 \$ 41.56	\$ 40.95	\$ 41.26	\$ 44.78
Value of land per acre.....	42 \$103	\$110	\$129	\$122
Value of improved land per acre.....	43 114	117	134	129
Value of buildings per acre.....	44 18.79	19.11	22.33	21.57
Total investment per acre.....	45 179	199	212	208
Percent of land area tillable.....	46 79.5	85.9	89.8	86.7
Percent of tillable land in:				
Corn.....	47 47.9	48.8	49.6	42.5
Oats.....	48 22.6	23.3	22.1	18.4
Wheat.....	49 .6	.5	.....	3.5
Soybeans for grain.....	50 5.3	5.3	10.4	13.3
Other cultivated crops.....	51 .8	.5	.2	3.3
Hay and pasture.....	52 22.8	21.6	17.7	19.0
Bushels per acre: Corn.....	53 72.8	60.6	67.8	66.3
Oats.....	54 41.9	55.4	42.4	47.0
Wheat.....	55 26.9	34.0	.....	26.9
Soybeans.....	56 26.1	29.0	27.5	25.4
Feed fed per acre.....	57 \$ 34.12	\$ 31.32	\$ 26.89	\$ 27.29
Returns for \$100 feed fed.....	58 149	156	144	158
Number of litters farrowed.....	59 29	24	23	21
Returns per litter.....	60 \$292	\$311	\$326	\$316
Dairy returns per cow.....	61 212	210	236	305
Egg returns per hen.....	62 3.85	3.90	4.00	3.91
Power and machinery cost per crop acre.....	63 \$ 12.07	\$ 11.55	\$ 11.26	\$ 11.64
Labor cost per crop acre.....	64 14.39	15.47	13.24	14.22
Land improvements cost per acre.....	65 1.02	1.47	1.33	1.53
Farm buildings cost per acre.....	66 1.97	2.07	2.32	2.23
Taxes per acre.....	67 1.14	1.68	1.57	1.64

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—Continued

	Ford	Livingston	Woodford	Champaign	Iroquois	Vermilion	Macon	DeWitt
1	\$58 175	\$50 163	\$51 543	\$53 169	\$45 988	\$54 252	\$56 098	\$54 560
2	35 875	30 992	30 951	34 522	26 287	34 168	38 862	35 692
3	1 690	1 262	1 312	1 039	1 426	1 340	938	859
4	5 341	5 194	5 061	5 229	5 551	5 914	3 861	4 632
5	134	109	94	54	126	84	117	30
6	3 404	2 207	2 907	2 051	2 332	2 175	2 535	3 210
7	1 445	714	1 728	819	1 148	1 200	876	1 105
8	424	287	463	270	348	96	18	27
9	193	368	160	174	171	176	155	163
10	6 363	5 876	5 853	5 996	5 235	5 375	5 441	5 573
11	3 306	3 154	3 014	3 015	3 364	3 724	3 295	3 269
12	\$18 167	\$14 576	\$16 551	\$17 286	\$14 006	\$18 895	\$17 375	\$19 599
13	2 665	1 423	2 677	1 413	1 211	1 589	1 644	2 776
14	1 003	1 102	1 052	1 026	1 493	1 440	798	1 037
15	4 084	2 607	5 595	2 464	3 418	4 510	2 135	4 392
16	217	208	465	198	181	196	10	21
17	611	1 777	593	552	658	619	617	499
18	433	423	430	437	465	460	460	504
19	8 971	6 867	5 611	11 043	6 373	9 847	11 596	10 188
20	109	91	90	87	126	150	81	78
21	74	78	38	66	81	84	34	104
22	\$ 4 579	\$ 4 079	\$ 4 542	\$ 4 288	\$ 4 326	\$ 6 213	\$ 4 833	\$ 4 551
23	375	359	354	311	580	798	300	259
24	442	491	579	478	534	634	405	444
25	.....	.....	.....	.....	.....	.....	.....	.....
26	2 239	1 900	1 889	2 072	1 952	2 531	2 381	2 198
27	848	699	991	718	603	1 477	1 049	913
28	492	395	489	514	419	541	510	513
29	183	235	240	195	238	232	188	224
30	\$13 588	\$10 497	\$12 009	\$12 998	\$ 9 680	\$12 682	\$12 542	\$15 048
31	1 934	1 810	1 782	1 566	1 886	1 631	1 749	1 889
32	\$11 654	\$ 8 687	\$10 227	\$11 432	\$ 7 794	\$11 051	\$10 793	\$13 159
33	20.0	17.3	19.8	21.5	17.0	20.4	19.2	24.1
34	\$10 205	\$ 7 637	\$ 9 098	\$10 178	\$ 6 959	\$ 9 851	\$ 9 520	\$11 877
35	9 756	7 554	9 401	10 343	7 661	8 269	10 414	11 384
36	3 399	2 520	2 178	2 218	1 554	3 953	1 668	3 160
37	59	64	64	61	49	42	34	25
38	307	241	241	260	235	290	287	290
39	\$ 59.19	\$ 60.56	\$ 68.65	\$ 66.44	\$ 59.57	\$ 65.13	\$ 60.62	\$ 67.49
40	21.22	24.47	26.23	22.50	26.42	27.04	22.96	22.18
41	\$ 37.97	\$ 36.09	\$ 42.42	\$ 43.94	\$ 33.15	\$ 38.09	\$ 37.66	\$ 45.31
42	\$117	\$129	\$128	\$133	\$112	\$118	\$136	\$123
43	118	131	136	135	115	120	138	132
44	17.40	21.58	20.99	20.10	23.61	20.39	13.47	15.95
45	190	208	214	204	196	187	196	188
46	94.2	92.3	87.6	93.5	91.1	92.9	93.4	86.4
47	42.5	45.6	46.2	40.3	41.3	35.0	37.4	45.4
48	24.4	25.8	22.6	16.1	19.5	13.3	16.4	16.4
49	....	1.0	.2	1.4	.9	5.3	1.3	.7
50	10.8	7.7	7.3	26.1	14.3	24.0	26.3	19.9
51	1.0	.4	1.8	.3	4.0	1.7	.9	....
52	21.3	19.5	21.9	15.8	20.0	20.7	17.7	17.6
53	64.8	61.0	67.9	73.8	58.7	75.2	72.5	71.9
54	39.0	41.8	49.0	45.1	39.8	41.8	44.8	43.8
55	....	25.9	28.0	27.4	24.5	26.8	23.4	35.0
56	25.9	26.8	27.4	26.3	23.9	25.6	26.3	28.0
57	\$ 20.01	\$ 20.37	\$ 29.16	\$ 16.29	\$ 21.10	\$ 20.43	\$ 14.84	\$ 22.00
58	146	153	153	142	149	148	132	144
59	16	12	20	13	13	18	10	16
60	\$337	\$329	\$312	\$287	\$355	\$305	\$338	\$327
61	230	239	241	234	254	262	239	223
62	4.21	6.02	4.57	3.84	4.20	4.40	4.66	3.47
63	\$ 9.55	\$ 10.32	\$ 10.71	\$ 9.79	\$ 11.06	\$ 11.11	\$ 10.40	\$ 9.95
64	11.09	12.61	14.88	10.33	13.20	12.90	11.58	12.32
65	1.22	1.49	1.47	1.20	2.47	2.75	1.05	.89
66	1.44	2.04	2.40	1.84	2.27	2.19	1.41	1.53
67	1.38	1.43	1.76	1.64	1.48	1.55	1.57	1.48

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—*Continued*

Accounting Item	Douglas, Piatt	Sangamon	Kankakee	Logan
Capital investment, total.....	1 \$61 512	\$55 945	\$46 903	\$55 334
Land.....	2 41 353	36 073	27 475	35 318
Land improvements.....	3 1 642	1 133	1 389	1 030
Farm buildings.....	4 5 151	5 201	5 883	5 422
Horses.....	5 82	110	53	128
Cattle.....	6 1 826	3 378	2 660	2 502
Hogs.....	7 1 043	1 765	754	1 392
Sheep.....	8 38	65	56	50
Poultry.....	9 146	139	194	166
Feed and grain.....	10 6 689	4 922	5 346	6 148
Machinery and equipment.....	11 3 542	3 159	3 093	3 178
Income, net increases, total.....	12 \$20 217	\$17 761	\$15 298	\$18 036
Cattle.....	13 1 336	2 399	1 094	2 339
Dairy sales.....	14 655	1 347	3 619	641
Hogs.....	15 2 996	5 531	2 603	4 313
Sheep.....	16 62	47	10	65
Poultry and eggs.....	17 597	409	731	585
Farm products used in household.....	18 409	498	416	451
Feed and grain.....	19 13 999	7 341	6 691	9 501
AAA payment.....	20 95	112	79	81
Labor and miscellaneous.....	21 68	77	55	60
Expenses, net decreases, total.....	22 \$ 5 540	\$ 5 534	\$ 5 369	\$ 5 002
Land improvements.....	23 461	415	700	338
Farm buildings.....	24 523	558	692	446
Feed and grain.....	25 .....	.....	.....	.....
Machinery and equipment.....	26 2 546	2 407	2 345	2 571
Hired labor.....	27 1 246	1 318	1 011	911
Taxes.....	28 554	507	364	509
Livestock and miscellaneous.....	29 210	329	257	227
Receipts less expenses.....	30 \$14 677	\$12 227	\$ 9 929	\$13 034
Unpaid labor.....	31 1 731	1 943	1 994	2 013
Net farm earnings.....	32 \$12 946	\$10 284	\$ 7 935	\$11 021
Rate earned on investment, percent.....	33 21.1	18.4	16.9	19.9
Labor and management earnings.....	34 \$11 355	\$ 8 890	\$ 7 058	\$ 9 749
Excess of sales over expenses.....	35 11 307	8 348	6 955	9 457
Increase in inventory.....	36 2 961	3 381	2 558	3 126
Number of farms included.....	37 43	43	37	49
Size of farm, acres.....	38 300	309	264	272
Gross earnings per acre.....	39 \$ 67.28	\$ 57.55	\$ 58.03	\$ 66.38
Total expenses per acre.....	40 24.20	24.23	27.93	25.82
Net earnings per acre.....	41 \$ 43.08	\$ 33.32	\$ 30.10	\$ 40.56
Value of land per acre.....	42 \$138	\$117	\$104	\$130
Value of improved land per acre.....	43 140	123	106	132
Value of buildings per acre.....	44 17.14	16.85	22.32	19.96
Total investment per acre.....	45 205	181	178	204
Percent of land area tillable.....	46 92.1	88.4	92.6	94.4
Percent of tillable land in:				
Corn.....	47 41.5	33.2	45.5	39.8
Oats.....	48 17.1	14.2	19.0	18.1
Wheat.....	49 2.1	4.1	.7	1.1
Soybeans for grain.....	50 26.6	21.9	14.4	19.9
Other cultivated crops.....	51 .3	1.3	1.1	.7
Hay and pasture.....	52 12.4	25.3	19.3	20.4
Bushels per acre:				
Corn.....	53 75.3	65.9	48.0	71.1
Oats.....	54 45.1	52.5	49.5	47.5
Wheat.....	55 24.4	16.8	22.8	24.8
Soybeans.....	56 28.0	27.0	20.7	26.5
Feed fed per acre.....	57 \$ 13.93	\$ 22.84	\$ 19.34	\$ 20.85
Returns for \$100 feed fed.....	58 144	144	165	147
Numbers of litters farrowed.....	59 12	19	17	16
Returns per litter.....	60 \$347	\$241	\$270	\$307
Dairy returns per cow.....	61 201	251	310	191
Egg returns per hen.....	62 3.64	3.40	4.42	3.64
Power and machinery cost per crop acre.....	63 \$ 10.16	\$ 11.38	\$ 11.11	\$ 12.30
Labor cost per crop acre.....	64 11.46	14.36	13.66	13.06
Land improvements cost per acre.....	65 1.53	1.34	2.66	1.24
Farm buildings cost per acre.....	66 1.74	1.81	2.63	1.64
Taxes per acre.....	67 1.55	1.50	1.21	1.63

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—Continued

	Menard	Will	Edgar, Coles	Moultrie	Mason	Cass	Morgan	Mont- gomery, Macoupin
1	\$46 991	\$45 981	\$51 852	\$55 323	\$37 994	\$43 410	\$44 133	\$27 145
2	27 946	24 723	34 920	39 291	23 372	26 117	26 411	14 416
3	1 013	1 144	1 135	923	676	1 147	920	905
4	5 277	6 018	4 051	3 770	3 775	4 104	3 810	3 355
5	99	92	117	76	145	164	157	150
6	2 546	3 807	2 422	1 901	1 422	2 140	2 533	1 885
7	1 586	745	1 483	469	727	1 688	2 384	993
8	30	10	70	30	8	54	426	90
9	132	249	160	127	1 091	151	179	147
10	4 980	5 851	4 650	5 225	3 812	5 165	4 625	2 862
11	3 382	3 342	2 844	3 511	2 966	2 680	2 688	2 342
12	\$17 157	\$14 780	\$17 765	\$18 291	\$13 780	\$16 402	\$16 984	\$11 273
13	2 279	2 312	2 412	1 275	847	2 080	1 994	1 213
14	576	3 406	801	1 404	279	362	626	2 083
15	5 111	1 833	4 788	1 595	2 102	6 194	7 331	3 639
16	42	4	113	40	9	72	424	115
17	532	953	602	444	2 560	593	641	488
18	424	486	503	427	385	539	480	421
19	8 052	5 605	8 338	12 931	7 414	6 341	5 350	3 191
20	82	96	108	105	123	106	88	85
21	59	85	100	70	61	115	50	38
22	\$ 4 658	\$ 4 980	\$ 4 863	\$ 5 088	\$ 4 201	\$ 4 721	\$ 4 536	\$ 3 240
23	288	463	452	292	264	582	487	396
24	429	562	428	375	363	458	416	332
25	.....	.....	.....	.....	.....	.....	.....	.....
26	2 172	2 254	2 193	2 529	2 087	2 076	2 007	1 616
27	1 060	1 127	1 094	1 134	873	911	964	452
28	490	325	498	563	459	460	424	281
29	219	249	198	195	155	234	238	163
30	\$12 499	\$ 9 800	\$12 902	\$13 203	\$ 9 579	\$11 681	\$12 448	\$ 8 033
31	1 833	1 933	1 820	1 724	1 817	2 028	1 979	1 858
32	\$10 666	\$ 7 867	\$11 082	\$11 479	\$ 7 762	\$ 9 653	\$10 469	\$ 6 175
33	22.7	17.1	21.4	20.8	20.4	22.2	23.7	22.8
34	\$ 9 772	\$ 7 050	\$ 9 982	\$10 076	\$ 7 238	\$ 8 923	\$ 9 758	\$ 6 102
35	8 853	7 909	9 128	11 206	8 423	8 437	7 656	5 021
36	3 222	1 405	3 271	1 570	1 771	2 705	4 312	2 591
37	24	37	45	39	23	25	38	41
38	270	234	305	325	346	310	263	232
39	\$ 63.50	\$ 63.16	\$ 58.21	\$ 56.26	\$ 39.87	\$ 52.99	\$ 64.65	\$ 48.59
40	24.02	29.54	21.90	20.95	17.41	21.80	24.80	21.97
41	\$ 39.48	\$ 33.62	\$ 36.31	\$ 35.31	\$ 22.46	\$ 31.19	\$ 39.85	\$ 26.62
42	\$103	\$106	\$114	\$121	\$ 68	\$ 84	\$101	\$ 62
43	109	109	121	129	74	99	113	70
44	19.53	25.72	13.27	11.60	10.92	13.26	14.50	14.46
45	174	196	170	170	110	140	168	117
46	87.5	90.8	87.7	87.5	84.4	77.2	81.3	78.6
47	40.9	43.8	35.6	35.4	36.5	35.1	36.4	26.6
48	17.3	22.8	14.1	15.9	9.1	14.0	13.5	12.5
49	3.2	1.2	4.5	3.0	19.5	8.2	7.3	10.9
50	19.6	11.8	22.1	30.3	6.0	20.1	21.7	23.5
51	.6	2.1	2.1	.4	11.0	4.5	.4	1.9
52	18.4	18.3	21.6	15.0	17.9	18.1	20.7	24.6
53	70.3	53.2	71.3	70.3	55.9	70.7	73.0	67.0
54	51.2	55.9	41.3	42.3	33.0	40.0	50.4	34.0
55	19.7	44.4	21.7	19.4	16.8	20.1	19.4	12.1
56	30.1	24.4	24.7	26.8	22.8	27.5	27.9	24.7
57	\$ 23.34	\$ 25.03	\$ 20.88	\$ 10.10	\$ 12.40	\$ 21.75	\$ 29.22	\$ 20.43
58	141	152	144	156	143	145	149	166
59	19	9	20	7	11	21	23	16
60	\$273	\$317	\$324	\$365	\$278	\$337	\$333	\$320
61	219	337	215	242	212	162	226	293
62	4.32	4.62	3.69	3.34	3.64	3.54	3.60	3.26
63	\$ 11.01	\$ 12.01	\$ 10.19	\$10.04	\$ 8.83	\$ 11.15	\$ 11.83	\$ 11.38
64	13.80	15.55	12.51	10.90	10.61	13.86	15.64	14.78
65	1.07	1.98	1.48	.90	.76	1.88	1.85	1.71
66	1.59	2.40	1.40	1.15	1.05	1.48	1.58	1.43
67	1.54	1.24	1.45	1.51	1.11	1.12	1.42	.98

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—*Continued*

Accounting Item	Christian, Shelby	Adams, Schuyler	Brown, Scott, Pike	Greene, Jersey	
Capital investment, total	1	\$34 181	\$33 114	\$36 913	\$32 228
Land	2	21 881	17 965	18 946	17 517
Land improvements	3	778	825	742	1 035
Farm buildings	4	2 628	4 007	3 628	3 593
Horses	5	86	139	224	231
Cattle	6	1 479	2 300	3 440	2 471
Hogs	7	912	1 767	2 958	1 304
Sheep	8	39	67	575	15
Poultry	9	179	136	119	144
Feed and grain	10	3 306	3 014	3 670	3 115
Machinery and equipment	11	2 893	2 894	2 611	2 803
Income, net increases, total	12	\$13 270	\$13 106	\$15 765	\$12 716
Cattle	13	841	1 445	3 071	1 629
Dairy sales	14	1 266	1 133	559	2 621
Hogs	15	3 115	6 328	10 337	4 437
Sheep	16	42	72	372	17
Poultry and eggs	17	653	487	352	523
Farm products used in household	18	369	443	420	495
Feed and grain	19	6 848	3 054	512	2 872
AAA payment	20	97	87	91	73
Labor and miscellaneous	21	39	57	51	49
Expenses, net decreases, total	22	\$ 3 663	\$ 3 602	\$ 4 590	\$ 3 957
Land improvements	23	318	423	317	348
Farm buildings	24	247	396	397	303
Feed and grain	25				
Machinery and equipment	26	1 911	1 692	2 100	1 645
Hired labor	27	685	494	1 059	1 129
Taxes	28	358	393	424	344
Livestock and miscellaneous	29	144	204	293	188
Receipts less expenses	30	\$ 9 607	\$ 9 504	\$11 175	\$ 8 759
Unpaid labor	31	1 472	2 208	1 952	1 729
Net farm earnings	32	\$ 8 135	\$ 7 296	\$ 9 223	\$ 7 030
Rate earned on investment, percent	33	23.8	22.0	25.0	21.8
Labor and management earnings	34	\$ 7 702	\$ 7 145	\$ 8 841	\$ 6 617
Excess of sales over expenses	35	6 867	5 619	6 178	6 044
Increase in inventory	36	2 371	3 442	4 577	2 220
Number of farms included	37	34	47	34	40
Size of farm, acres	38	254	267	317	250
Gross earnings per acre	39	\$ 52.18	\$ 49.12	\$ 49.68	\$ 50.90
Total expenses per acre	40	20.19	21.77	20.61	22.76
Net earnings per acre	41	\$ 31.99	\$ 27.35	\$ 29.07	\$ 28.14
Value of land per acre	42	\$ 86	\$ 67	\$ 60	\$ 70
Value of improved land per acre	43	91	80	70	79
Value of buildings per acre	44	10.33	15.02	11.43	14.38
Total investment per acre	45	134	124	116	129
Percent of land area tillable	46	89.0	73.8	71.6	75.9
Percent of tillable land in:					
Corn	47	34.9	30.4	38.8	35.5
Oats	48	13.7	20.5	16.8	10.1
Wheat	49	5.0	5.6	5.1	9.7
Soybeans for grain	50	27.1	14.0	8.6	16.4
Other cultivated crops	51		2.0	2.5	1.6
Hay and pasture	52	19.3	27.5	28.2	26.7
Bushels per acre: Corn	53	66.7	68.5	66.6	64.5
Oats	54	40.6	43.0	33.8	36.9
Wheat	55	19.2	21.0	14.3	12.1
Soybeans	56	21.8	29.2	26.8	25.6
Feed fed per acre	57	\$ 16.87	\$ 24.30	\$ 32.91	\$ 23.04
Returns for \$100 feed fed	58	145	152	144	168
Number of litters farrowed	59	11	24	34	18
Returns per litter	60	\$326	\$325	\$284	\$275
Dairy returns per cow	61	249	191	185	275
Egg returns per hen	62	3.63	3.73	3.19	3.87
Power and machinery cost per crop acre	63	\$ 10.10	\$ 11.48	\$ 12.53	\$ 12.06
Labor cost per crop acre	64	10.62	16.48	16.12	18.27
Land improvements cost per acre	65	1.25	1.59	1.00	1.39
Farm buildings cost per acre	66	.97	1.48	1.25	1.21
Taxes per acre	67	1.17	1.20	.92	1.18

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—Continued

	Madison	Randolph	St. Clair	Bond, Clinton	Monroe, Washing- ton	Fayette, Effingham	Jefferson, Hamilton, Franklin, William- son, Perry	Jasper, Clark, Crawford
1	\$21 419	\$19 418	\$27 891	\$22 278	\$21 643	\$18 109	\$14 311	\$24 008
2	10 613	8 985	15 075	11 229	12 564	8 994	7 054	12 725
3	443	802	491	620	458	617	606	811
4	2 675	2 601	3 610	2 842	2 344	1 938	1 404	2 838
5	165	174	354	149	164	150	129	116
6	1 843	1 568	1 645	1 825	1 224	1 577	1 339	1 572
7	498	524	802	591	427	414	478	1 077
8	10	99	24	35	39	98	67	9
9	183	190	256	213	230	248	166	212
10	2 226	2 139	2 917	2 191	2 041	2 144	1 589	2 623
11	2 763	2 336	2 717	2 583	2 152	1 929	1 479	2 025
12	\$ 9 267	\$ 7 231	\$ 9 419	\$ 8 905	\$ 7 823	\$ 8 878	\$ 6 048	\$11 298
13	939	804	794	741	551	848	907	1 235
14	3 802	1 922	2 343	3 729	2 037	2 092	902	639
15	1 685	1 238	2 457	1 622	1 315	1 249	1 539	3 720
16	17	220	18	47	51	130	131	15
17	687	713	1 013	682	927	1 006	684	849
18	424	455	524	544	435	403	425	524
19	1 570	1 725	2 137	1 433	2 367	3 042	1 347	4 197
20	90	116	117	74	114	97	97	98
21	53	38	16	33	26	11	16	21
22	\$ 2 910	\$ 2 555	\$ 2 988	\$ 2 929	\$ 2 584	\$ 2 724	\$ 2 417	\$ 3 152
23	286	334	304	268	275	455	438	480
24	312	247	269	252	237	251	176	249
25	.....	.....	.....	.....	.....	.....	.....	.....
26	1 547	1 249	1 533	1 532	1 285	1 342	1 177	1 518
27	397	417	431	491	411	328	389	494
28	215	195	285	230	235	214	152	265
29	153	113	166	156	141	134	85	146
30	\$ 6 357	\$ 4 676	\$ 6 431	\$ 5 976	\$ 5 239	\$ 6 154	\$ 3 631	\$ 8 146
31	2 168	1 570	2 107	2 009	1 813	1 774	1 362	1 881
32	\$ 4 189	\$ 3 106	\$ 4 324	\$ 3 967	\$ 3 426	\$ 4 380	\$ 2 269	\$ 6 265
33	19.6	16.0	15.5	17.8	15.8	24.2	15.8	26.1
34	\$ 4 431	\$ 3 267	\$ 4 204	\$ 4 006	\$ 3 507	\$ 4 660	\$ 2 534	\$ 6 470
35	4 351	3 071	4 700	3 146	3 222	3 853	1 796	4 720
36	1 582	1 150	1 207	2 286	1 582	1 898	1 410	2 902
37	52	46	32	31	47	33	38	34
38	198	241	225	235	238	253	241	286
39	\$ 46.68	\$ 30.04	\$ 41.79	\$ 37.88	\$ 32.80	\$ 35.13	\$ 25.11	\$ 39.55
40	25.58	17.14	22.61	21.01	18.44	17.80	15.69	17.62
41	\$ 21.10	\$ 12.90	\$ 19.18	\$ 16.87	\$ 14.36	\$ 17.33	\$ 9.42	\$ 21.93
42	\$ 53	\$ 37	\$ 67	\$ 48	\$ 53	\$ 36	\$ 29	\$ 45
43	56	41	73	53	59	39	31	48
44	13.48	10.81	16.02	12.09	9.83	7.67	5.83	9.93
45	108	81	124	95	91	72	59	84
46	82.4	82.4	84.3	78.0	80.8	80.1	84.5	81.9
47	26.7	17.1	25.4	23.7	19.6	18.2	17.6	34.4
48	8.4	9.4	10.8	15.6	10.7	12.3	5.8	7.5
49	20.4	23.6	20.1	17.6	30.9	11.8	18.5	15.7
50	9.0	7.7	10.3	10.9	5.6	21.2	5.6	13.8
51	2.7	8.4	2.9	4.3	6.7	2.3	8.4	1.3
52	32.8	33.8	29.9	27.9	26.5	34.2	44.1	27.3
53	50.9	48.7	53.9	51.3	41.1	62.3	45.1	56.8
54	34.3	33.9	40.4	39.5	36.6	28.9	27.7	24.4
55	17.7	14.6	16.5	16.7	17.1	18.3	14.4	15.4
56	24.1	16.9	24.3	21.1	20.4	20.7	18.4	21.4
57	\$ 21.41	\$ 14.13	\$ 20.08	\$ 19.99	\$ 12.48	\$ 13.72	\$ 10.52	\$ 16.50
58	176	155	156	155	176	163	178	146
59	8	7	11	12	7	7	6	15
60	\$283	\$263	\$281	\$275	\$278	\$333	\$302	\$270
61	312	238	249	287	256	260	198	207
62	3.89	3.93	3.96	3.61	4.37	3.49	3.94	4.14
63	\$ 13.11	\$ 9.65	\$ 11.83	\$ 10.94	\$ 9.40	\$ 9.53	\$ 10.49	\$ 8.50
64	19.35	13.59	16.55	15.73	14.11	13.27	14.20	12.35
65	1.44	1.39	1.35	1.14	1.15	1.80	1.82	1.68
66	1.57	1.03	1.19	1.07	.99	.99	.73	.87
67	.87	.62	1.03	.79	.78	.62	.48	.77

(Continued)

TABLE 13.—SUMMARY OF BUSINESS RECORDS FROM 2,565 ILLINOIS FARMS BY COUNTIES AND GROUPS OF COUNTIES, 1946—*Concluded*

Accounting Item	Clay, Richland, Wayne, Marion	Edwards	Gallatin, White, Wabash, Lawrence, Saline	Massac, Jackson, Johnson, Pope, Hardin
Capital investment, total..... 1	\$16 251	\$17 922	\$21 784	\$12 878
Land..... 2	8 454	9 525	11 599	6 369
Land improvements..... 3	793	663	742	279
Farm buildings..... 4	1 721	1 582	2 183	1 288
Horses..... 5	152	137	164	260
Cattle..... 6	1 763	1 273	1 640	1 598
Hogs..... 7	330	709	659	459
Sheep..... 8	108	69	9	35
Poultry..... 9	168	196	142	136
Feed and grain..... 10	1 247	2 120	2 719	1 433
Machinery and equipment..... 11	1 515	1 648	1 927	1 021
Income, net increases, total..... 12	\$ 6 864	\$ 7 617	\$ 8 944	\$ 4 692
Cattle..... 13	907	1 004	1 367	1 139
Dairy sales..... 14	784	336	766	754
Hogs..... 15	915	2 573	2 400	1 130
Sheep..... 16	163	103	11	57
Poultry and eggs..... 17	601	730	462	357
Farm products used in household..... 18	433	436	451	427
Feed and grain..... 19	2 930	2 297	3 336	714
AAA payment..... 20	94	114	119	84
Labor and miscellaneous..... 21	37	24	32	30
Expenses, net decreases, total..... 22	\$ 2 304	\$ 2 588	\$ 2 916	\$ 1 600
Land improvements..... 23	393	612	379	159
Farm buildings..... 24	193	175	235	145
Feed and grain..... 25	.....	.....	.....	.....
Machinery and equipment..... 26	1 061	1 143	1 489	800
Hired labor..... 27	382	367	434	284
Taxes..... 28	198	212	247	157
Livestock and miscellaneous..... 29	77	79	132	55
Receipts less expenses..... 30	\$ 4 560	\$ 5 029	\$ 6 028	\$ 3 092
Unpaid labor..... 31	1 336	1 388	1 552	1 160
Net farm earnings..... 32	\$ 3 224	\$ 3 641	\$ 4 476	\$ 1 932
Rate earned on investment, percent..... 33	19.8	20.3	20.6	15.0
Labor and management earnings..... 34	\$ 3 392	\$ 3 763	\$ 4 434	\$ 2 170
Excess of sales over expenses..... 35	2 141	2 953	3 683	1 283
Increase in inventory..... 36	1 986	1 640	1 894	1 382
Number of farms included..... 37	58	53	32	42
Size of farm, acres..... 38	306	240	248	236
Gross earnings per acre..... 39	\$ 22.43	\$ 31.70	\$ 36.01	\$ 19.90
Total expenses per acre..... 40	11.89	16.55	17.99	11.71
Net earnings per acre..... 41	\$ 10.54	\$ 15.15	\$ 18.02	\$ 8.19
Value of land per acre..... 42	\$ 28	\$ 40	\$ 47	\$ 27
Value of improved land per acre..... 43	30	43	50	34
Value of buildings per acre..... 44	5.62	6.58	8.79	5.46
Total investment per acre..... 45	53	75	88	55
Percent of land area tillable..... 46	83.6	83.2	85.3	67.0
Percent of tillable land in:				
Corn..... 47	17.3	25.5	32.1	21.4
Oats..... 48	8.4	5.4	2.4	3.8
Wheat..... 49	9.0	14.8	14.6	6.0
Soybeans for grain..... 50	13.5	9.0	6.9	4.7
Other cultivated crops..... 51	5.1	6.9	5.9	3.2
Hay and pasture..... 52	46.7	38.4	38.1	60.9
Bushels per acre: Corn..... 53	41.9	56.2	50.8	40.9
Oats..... 54	27.3	26.9	30.4	30.3
Wheat..... 55	16.7	14.2	14.8	12.2
Soybeans..... 56	17.7	21.8	15.9	20.4
Feed fed per acre..... 57	\$ 6.93	\$ 13.82	\$ 12.38	\$ 9.57
Returns for \$100 feed fed..... 58	176	154	175	168
Number of litters farrowed..... 59	4	12	8	6
Returns per litter..... 60	\$309	\$293	\$330	\$246
Dairy returns per cow..... 61	193	131	189	197
Egg returns per hen..... 62	3.57	3.74	3.40	3.13
Power and machinery cost per crop acre..... 63	\$ 6.71	\$ 9.34	\$ 10.76	\$ 10.64
Labor cost per crop acre..... 64	9.52	12.68	13.03	16.45
Land improvements cost per acre..... 65	1.28	2.55	1.53	.67
Farm buildings cost per acre..... 66	.63	.73	.95	.61
Taxes per acre..... 67	.54	.65	.81	.45

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 8-47, 9900
Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Ind tri pro ction ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period ..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1939
1932.....	65	48	56	96	60	57	60	73	51	5
1933.....	66	51	57	94	62	68	75	70	54	6
1934.....	75	65	76	100	73	73	74	80	70	7
1935.....	80	79	102	101	90	86	85	86	80	8
1936.....	81	81	105	100	104	109	110	101	93	10
1937.....	86	86	118	104	108	116	112	107	111	11
1938.....	79	69	90	98	99	107	109	90	85	8
1939.....	77	65	84	97	99	107	110	106	100	10
1940.....	78	68	89	98	107	114	116	115	114	12
1941.....	87	82	112	103	142	146	140	138	168	16
1942.....	99	105	141	117	197	200	169	171	245	19
1943.....	103	123	165	127	251	243	191	209	330	23
1944.....	104	124	165	132	265	249	189	231	346	23
1945.....	106	128	171	136	283	246	180	236	288	20
1946.....	121	148	204	151	302	295	195	238	261	17
1946 June...	113	140	186	147	271	182	124	234	257	17
July.....	125	157	231	155	335	284	183	240	261	17
Aug.....	129	161	235	159	313	245	154	243	278	18
Sept.....	124	154	216	156	249	178	114	243	284	18
Oct.....	131	163	256	162	348	522	322	244	286	18
Nov.....	137	169	241	166	367	539	325	247	292	18
Dec.....	140	168	236	166	363	374	225	250	300	18
1947 Jan.....	142	165	229	168	366	363	216	251	300	18
Feb.....	145	170	235	173	352	346	200	253	...	18
Mar.....	150	182	259	177	342	...	...	254	...	18
Apr.....	148	177	252	180	...	...	...	253	...	18
May.....	147	176	245	178	...	...	...	256	...	18
June.....	148 ¹¹	179 ¹¹	255	180	...	...	...	...	...	...

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			August 1946	Current months		
	1935-39	1945	1946		June	July	August
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.77	\$1.93	\$2.03	\$2.2
Oats, bu.....	.31	.68	.77	.71	.92	.93	.9
Wheat, bu.....	.86	1.58	1.83	1.89	2.18	2.20	2.2
Barley, bu.....	.62	1.09	1.29	1.43	1.55	1.45	1.50
Soybeans, bu.....	.90	2.09	2.30	2.40	3.05	3.11	3.0
Hogs, cwt.....	8.52	14.25	17.53	21.40	23.80	24.40	24.9
Beef cattle, cwt.....	7.88	13.22	16.41	17.10	21.30	22.60	23.0
Lambs, cwt.....	8.36	13.77	16.38	16.80	21.90	22.60	22.6
Milk cows, head.....	58.00	125.50	147.00	153.00	175.00	175.00	175.0
Veal calves, cwt.....	8.66	13.99	16.78	17.00	23.10	23.30	23.1
Sheep, cwt.....	3.58	6.38	6.99	6.50	7.00	7.20	7.7
Butterfat, lb.....	.27	.48	.63	.67	.60	.64	.6
Milk, cwt.....	1.68	2.95	3.80	4.00	3.25	3.30	3.6
Eggs, doz.....	.19	.35	.34	.32	.37	.39	.3
Chickens, lb.....	.15	.25	.27	.27	.28	.29	.2
Wool, lb.....	.25	.43	.43	.47	.36	.37	.3
Apples, bu.....	1.08	2.99	3.37	2.50	3.50	2.20	2.3
Hay, ton.....	9.39	17.72	15.55	14.50	17.00	15.00	15.0
Potatoes, bu.....	.91	2.06	1.70	1.70	1.70	2.20	2.3

¹⁻¹² For sources of data in tables see preceding page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the U States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30,

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CROP PRODUCTION COSTS IN 1946

For 27 years a group of farmers in Champaign and Piatt counties in east-central Illinois has kept records of the cost of producing farm crops. In 1946 the farmers included in this cost study had farms which were about 95 acres larger than those owned by the average farmer in the area, secured somewhat higher crop yields, and had better managed farms than did the average farmers in the two counties. As a result they had somewhat lower costs than did many of their neighbors.

Weather conditions in 1946 in east-central Illinois were very favorable for crop production, making it an outstanding crop year, with corn production at a new high. Land in east-central Illinois, however, is being heavily cropped to corn and soybeans. Soybean yields have come down because not enough rotations supplying green manures are being used or enough animal manures and commercial fertilizers being applied to maintain yields.

Methods employed in computing crop costs govern their use. In interpreting the crop cost figures which follow it should be recognized that in calculating costs some assumptions must be made. In periods like 1946 these assumptions must be recognized in interpreting the figures. In the costs given here the following factors cause the stated costs to be lower than farmers would recognize as "necessary costs" for continuing farm operations at this time: (1) The land values used are below current sale values for land; (2) the operator's labor is included at cost of hired labor and no allowance is made for management; these operators would not continue to farm under present conditions if they did not realize higher earnings than hired man's wages; (3) no allowance is made for fertility removal from the soil by these heavy-feeding crops. If the

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

methods used in calculating costs, allowed for these factors costs would be higher. Nevertheless the high yields obtained in 1946 and the high price level made the operations of this group of operators profitable even if there were any factual way to allow for the three factors mentioned above. Anyone who uses these figures should realize that they are accounting costs and not economic costs.

Cost of labor and power increased. The monthly wage paid hired farm labor in 1946 was 3.3 times the wage paid in 1937. Men hired by the month worked only five percent more hours monthly in 1946 than did those hired ten years earlier, which meant that each hour of hired farm work in 1946 cost three times as much as it did in 1937 (Table 1). High

TABLE 1. — THE EFFECT OF INCREASING FARM WAGES AND POWER AND MACHINERY COSTS ON THE ACRE-COST OF CORN AND SOYBEANS, 1937-1946

Year	Cost per hour			Power-drawn machinery cost per acre	Operating expenses per acre ^b	
	Hired man labor	Horse use ^a	Two-plow general-purpose tractor		Corn	Soybeans
1937.....	\$.23	\$.16	\$.46	\$1.46	\$10.94	\$10.74
1938.....	.24	.15	.45	1.49	10.59	8.44
1939.....	.25	.16	.50	2.16	11.25	8.57
1940.....	.29	.20	.49	2.11	12.09	9.28
1941.....	.32	.17	.53	2.24	12.76	10.38
1942.....	.37	.37	.48	2.60	14.22	12.15
1943.....	.44	...	.50	2.79	13.78	12.10
1944.....	.55	...	.50	3.00	14.75	13.50
1945.....	.66	...	.68	3.55	17.42	15.32
1946.....	.70	...	.70	4.30	18.14	16.75

^a After 1942 so few horses were used an average figure could not be computed.

^b Operating expenses include all costs except the land charge.

labor costs were partially compensated for by putting the labor to work with large power units. Very few of the farmers keeping cost records in 1946 used horses. The cost of power furnished by tractors did not increase at the same rate as did the cost of labor. However, the cost of an hour of drawbar power furnished by the two-plow tractors increased from 46 cents in 1937 to 70 cents in 1946. An increase in the investment in power-drawn machinery accompanied the more general use of combines, corn pickers, pick-up balers, and field forage choppers which accompanied the more general use of tractor power.

The operating expenses per acre of corn, oats, and wheat in 1946 were the highest since 1920, when the cost work was started. The operating expenses incurred in producing an acre of soybeans were the highest of any year following the depression in 1933. The operating expenses per acre of individual crops do not always follow the changes in hourly rates of labor and power because seasonal weather conditions affect the amount

of time that is spent in the field, and the variations in crop yields often affect the time that must be spent harvesting the crop.

Cost of producing corn in Champaign and Piatt counties in 1946. The expense of growing an acre of corn in 1946 up to the time of harvest was \$12.85 without including taxes or a land charge (Table 2). Of grow-

TABLE 2.—THE COST OF PRODUCING CROPS IN 1946 IN CHAMPAIGN AND PIATT COUNTIES, ILLINOIS

	Corn	Soybeans	Oats	Alfalfa hay	Clover hay
Acres in crop per farm.....	101.1	83.3	47.8	8.8	14.7
Yield per acre, bu. or tons.....	76.1	24.7	45.6	2.9	1.1
Labor and power per acre					
Man hours.....	6.67	4.60	3.02	16.04	4.07
Horse hours.....	.56	.30	.30	.12	.19
Tractor hours.....	5.44	3.18	1.74	6.75	2.05
Truck miles.....	.50	1.90	1.29	1.04	.68
COST ITEMS PER ACRE					
Growing costs					
Man labor.....	\$ 2.86	\$ 2.37	\$.72	\$.....	\$.....
Horse labor.....	.03	.07	.07	.....	.....
Tractor use.....	2.40	1.89	.60	.....	.....
Machinery.....	1.08	.97	.49	.....	.....
Seed.....	1.23	3.37	2.24	2.79	1.71
Manure and fertilizer.....	2.05	1.19	1.16	.86	.91
General overhead.....	3.20	2.14	1.39	6.24	2.08
Total growing cost.....	\$12.85	\$11.93	\$ 6.67	\$ 9.89	\$ 4.70
Harvesting costs					
Man labor.....	\$ 1.91	\$ 1.01	\$ 1.41	\$11.89	\$ 2.78
Horse labor.....	.22	.08	.08	.09	.13
Tractor use.....	1.45	.46	.68	5.53	1.28
Picker and pick-up baler.....	1.50	.....	.....	3.78	2.81
Combine.....	.....	1.76	1.79	.....	.53
Machinery and truck use.....	.03	.16	.11	4.35	1.27
Total harvesting cost.....	\$ 5.11	\$ 3.39	\$ 4.07	\$25.64	\$ 8.80
Cost of growing and harvesting.....	\$17.96	\$15.32	\$10.74	\$35.53	\$13.50
Taxes.....	1.61	1.59	1.61	1.61	1.60
Interest at 5% on land value.....	6.88	6.93	6.85	6.77	6.88
TOTAL COST.....	\$26.45	\$23.84	\$19.20	\$43.91	\$21.98
INCOME PER ACRE					
Grain or seed.....	\$91.78	\$56.89	\$36.46	\$.....	\$ 3.61
Pasture.....	1.43	.16	1.43	.63	2.38
Straw or hay.....	.....	.....	.72	70.81	24.48
TOTAL INCOME.....	\$93.21	\$57.05	\$38.61	\$71.44	\$30.47
NET COST PER BUSHEL OR TON.....	\$.329	\$.957	\$.374	\$14.94	\$14.67

ing expenses, the cost of labor was 22 percent, power and machinery 27 percent, and seed and fertilizer nearly 26 percent. When the expenses of harvesting and the taxes of \$1.61 an acre were added to the growing expenses and the credit for stalk pasture subtracted from the total, the net operating expenses per acre of corn were \$18.14. The conservative value of the land on which corn was grown was approximately \$138 an acre. When interest at 5 percent on this land value was added to the net operating expenses, it gave a net acre-cost of \$25.02. A yield of 76 bushels of corn per acre in 1946 meant it cost 32.9 cents a bushel to produce corn on the farms where cost figures were kept.

Cost of producing soybeans. The acre-yield of soybeans in Champagne and Piatt counties has been gradually declining. The yield per acre in 1946 was 24.7 bushels, and for the years 1944-1946, 24.2 bushels, compared with 30 bushels as the average of the three years 1937-1939. The net operating expenses in producing an acre of soybeans in 1946 were \$16.75. When interest at 5 percent on the estimated value of an acre of land, on which soybeans were grown, was added to net operating expenses, it meant a net acre cost of \$23.68. Dividing this figure by the yield in 1946 gave an average cost of 95.7 cents a bushel.

Three-fourths of the men in the cost work owned their own combines. The combine cost for an acre of soybeans shown in Table 2 as \$1.76 is figured as follows: The average is made from two figures, namely (1) the estimated share of the cost of hired custom soybean combining that went as payment for the use of the combine without the accompanying men and power in the custom outfit where soybeans were combined, and (2) the cost of operating combine machines on those farms where the operator's own combine was used, again omitting men and power costs.

Cost of producing oats. In 1946 the oat crop was combined on all farms in the cost study. The net operating expenses for producing and combining an acre of oats were \$10.20, after deducting the credit for straw and pasture. When land charges were added, the net cost of producing an acre of combined oats was \$17.05. The oat yield per acre was 45.6 bushels, and the average cost per bushel was 37.4 cents.

Alfalfa hay. In 1946 the net cost of the alfalfa crop per acre was \$43.28 when taxes and interest on land values were included and after a small credit for pasture had been deducted. An unusually large number of man hours were spent harvesting alfalfa in 1946. The pick-up baler was used in the field to bale 94 percent of the hay. The average cost of producing a ton of alfalfa hay in 1946 was \$14.94.

Clover hay. It is evident by the figures in Table 2 that the acre yields of clover hay were low in this part of Illinois, and yet clover hay yields on the cost farms in 1946 were as high as the previous ten-year average. The pick-up baler was used in harvesting 86 percent of the hay. The net cost of producing an acre of clover hay was \$15.99. The yield per acre was 1.1 tons, and the average cost per ton \$14.67. To obtain the net cost of clover hay per acre, a credit of \$5.99 was deducted from the gross cost for the value of seed harvested and pasture for livestock in the fall.

Costs are used by farmers to learn ways to economize in their operations. The cost records are used by farmers who keep them to learn ways in which they can economize in their operations and the degree to which profitable practices affect farm income and not for the relationship which exists between cost and price. When the costs of indi-

vidual products are presented, wide margins appear between the cost of production as shown here and the price of some products. This situation is somewhat misleading, however, since some crops show a much larger profit than others. Also, the more profitable crops in the rotation, such as corn and soybeans, draw more heavily on soil fertility than do the less profitable small grains and hays. No attempt was made, in arriving at the crop costs shown here, to charge for the fertility removed from the soil, because no satisfactory method of doing so has yet been found. If a charge had been made for the fertility depletion of corn and soybeans, the margin between cost of production and prices of these crops would have been narrowed considerably.

In the interest of good farming and the continued low cost of production, it is necessary to include small grains as nurse crops and clovers as soil-building crops. Both groups are less profitable than corn and beans, for example, but all of them are needed to make the rotation as a whole profitable over a period of years.

R. H. WILCOX

EFFECTS OF DEMONSTRATION FARMING IN WAR YEARS

In eight Illinois counties¹ there are a total of approximately 200 test-demonstration farms. The operators of these farms are cooperating with the College of Agriculture and the Tennessee Valley Authority in testing and demonstrating the use of high-test phosphate fertilizers as a part of complete plans for better farming. Methods of applying fertilizers and the effects of the fertilizers on crop yields are tested and demonstrated. The principal objective, however, is to demonstrate, for the farm as a whole, the effects of a complete improvement program that includes the use of fertilizers as needed.

To determine the effects of the test-demonstration program, records of 15 demonstration farms in Edwards County and 15 comparable non-demonstration farms in Edwards and adjoining counties were studied for the five-year period 1941-45. Each of the 30 farms was farmed by the same operator throughout the period, although the acreages varied from year to year with the renting or purchasing of additional land. Demonstration and non-demonstration farms were paired for similarity in value of land and acres of tillable land as recorded in 1941. In these factors the two groups of farms were comparable throughout the five years. With demonstration and non-demonstration farms comparable in land resources, and assuming operators of comparable managerial abilities,

¹ The eight demonstration counties include Jefferson, Marion and Wayne in Farming-Type Area 7; Edwards and Gallatin in Area 8; and Johnson, Pope and Hardin in Area 9.

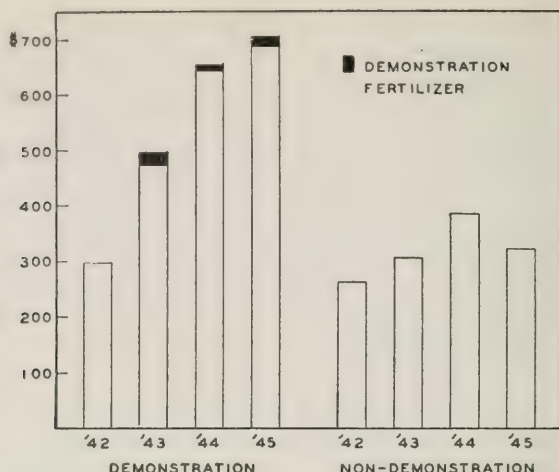


FIG. 1.—CASH EXPENSES PER FARM FOR LAND IMPROVEMENTS, 1942-1945, 15 DEMONSTRATION AND 15 NON-DEMONSTRATION FARMS

differences between the two groups can be attributed to the test-demonstration activity on the demonstration farms.

Summary

1. The demonstrators spent approximately 50 percent more for land improvements than the non-demonstrators.
2. The demonstration farms had fewer acres of row crops and larger acreages of hay and pasture. Acreages of legumes and mixed legumes and grasses for hay and pasture declined steadily on non-demonstration farms, but were maintained on demonstration farms.
3. Yields of corn and soybeans were consistently higher on the demonstration farms.
4. The demonstration farms had more beef cows and fewer hogs than the non-demonstration farms.
5. Net earnings were slightly higher on the non-demonstration farms.

Land Improvements

Land improvement expenses include the cost of limestone, mineral fertilizers, fencing, drainage, and soil conservation structures. Cash expenses for these improvements increased on both demonstration and non-demonstration farms, but they were consistently higher on the former (Figure 1). In the four years, 1942-1945, demonstrators spent a total

of \$2,155 for land improvements, an average of \$9.02 per acre. Non-demonstrators spent \$1,483, an average of \$6.02 per acre.¹

In the records demonstration fertilizer allocated by the Tennessee Valley Authority was charged at the cost to the demonstrator. This cost averaged about \$14 per ton, including freight and a \$10 per ton supervision fee paid to the University. The cost of fertilizer allocated for demonstration purposes was only \$50 of the total of \$2,155 spent by the demonstrators for land improvements in 1942-1945 (Figure 1). The demonstration program increased expenditures for land improvements on the demonstration farms, including limestone and fertilizers purchased from commercial sources, much more than the cost of fertilizers allocated to these farms for demonstration purposes.

No demonstration fertilizers were allocated to the 15 demonstration farms in 1941 or 1942. In 1943 they were allocated a total of 24 tons of triple superphosphate, in 1943 nine tons of calcium metaphosphate, and in 1945, 20 tons of calcium metaphosphate. These high test phosphate fertilizers were used to treat land seeded to legumes or legume and grass mixtures for pasture or hay.

Land Use

Conditions during the war years affected land use on both groups of farms, increasing the acreage of corn and soybeans (Table 1 and Figure 2). Acreages of these row crops were higher on the non-demonstration farms, and this was particularly true of soybeans. Acreages of small grains were similar on the two groups, declining from 1941 to 1943 but increasing in 1944 and 1945. There were significant differences in the acreage and percent of tillable land in hay and pasture. On the non-demonstration farms both the acreage and percentage in these crops declined continuously. With only 12 percent of their tillable land in legumes and mixed legumes and grasses in 1945 it is evident that soil-building rotations were not being followed on these non-demonstration farms. Hay and pasture acreages were much larger on the demonstration farms. Although acreages in these crops declined in 1942 they were maintained through the rest of the period. In each year except 1944 the demonstration farmers maintained from 25 to 30 percent of their tillable land in legumes or legume-grass mixtures.

The non-demonstration farms had consistently larger acreages of "other crops and idle" tillable land. Two factors probably account for

¹ Records for 1941 do not summarize land improvements as a separate item. For both the demonstration and non-demonstration farms, however, total cash expenses for land improvements and buildings in 1941 were less than for land improvements alone in 1942.

TABLE 1. — LAND USE, ACRES PER FARM, 15 DEMONSTRATION AND 15 NON-DEMONSTRATION FARMS, 1941-1945

Crops and land use	1941	1942	1943	1944	1945
Demonstration farms:			(acres)		
Corn.....	41	45	54	61	43
Soybeans, grain.....	6	18	17	16	16
Wheat.....	27	24	22	46	48
Oats, barley and rye.....	20	21	16	11	15
Legume hay and pasture.....	21	38	18	20	30
Mixed hay and pasture.....	33	16	37	26	29
Non-legume hay and pasture.....	35	17	18	29	25
Total hay and tillable pasture.....	(89)	(71)	(73)	(75)	(84)
Other crops and idle.....	14	12	13	13	22
Total tillable land.....	(197)	(191)	(195)	(222)	(228)
Non-tillable pasture.....	6	6	14	7	7
Woodland.....	7	7	17	8	8
Farmstead, roads.....	11	11	12	11	11
Total acres.....	221	215	238	248	254
Non-demonstration farms:					
Corn.....	49	52	60	62	51
Soybeans, grain.....	13	25	21	30	23
Wheat.....	32	24	25	38	46
Oats, barley and rye.....	17	22	11	12	9
Legume hay and pasture.....	28	26	20	18	15
Mixed hay and pasture.....	8	9	11	13	11
Non-legume hay and pasture.....	25	22	20	18	18
Total hay and tillable pasture.....	(61)	(57)	(51)	(49)	(44)
Other crops and idle.....	22	20	25	14	42
Total tillable land.....	(194)	(200)	(193)	(205)	(215)
Non-tillable pasture.....	15	18	16	18	22
Woodland.....	12	16	14	15	18
Farmstead, roads.....	9	10	9	9	8
Total acres.....	230	244	232	247	263

this difference between the two groups of farms. With unfavorable weather at planting time in four of the five years, non-demonstration farmers may have been unable to get in as large an acreage of corn as they had planned. The other factor is that demonstrators had improved some of their rundown and idle land for forage or crop-production.

TABLE 2. — YIELDS OF GRAIN CROPS, BUSHEL PER ACRE, 1941-1945, DEMONSTRATION AND NON-DEMONSTRATION FARMS

	1941	1942	1943	1944	1945	Five-year average
Demonstration farms						
Corn.....	49.6	56.4	38.6	30.8	52.4	45.6
Oats.....	46.1	27.8	26.8	27.0	24.2	30.4
Wheat.....	25.6	18.4	20.7	20.1	15.3	20.0
Soybeans.....	13.1	19.4	14.1	15.6	21.3	16.7
Yield index ¹	104	111	107	102	106	106
Non-demonstration farms						
Corn.....	47.0	48.0	33.9	28.6	49.6	41.4
Oats.....	44.0	29.7	29.5	21.9	20.0	29.0
Wheat.....	26.1	16.2	16.0	20.3	17.7	19.5
Soybeans.....	9.7	14.2	10.0	12.8	15.9	12.5
Yield index ¹	98	96	89	95	104	96

¹ Based on average yields of these four crops on all accounting farms in the area.

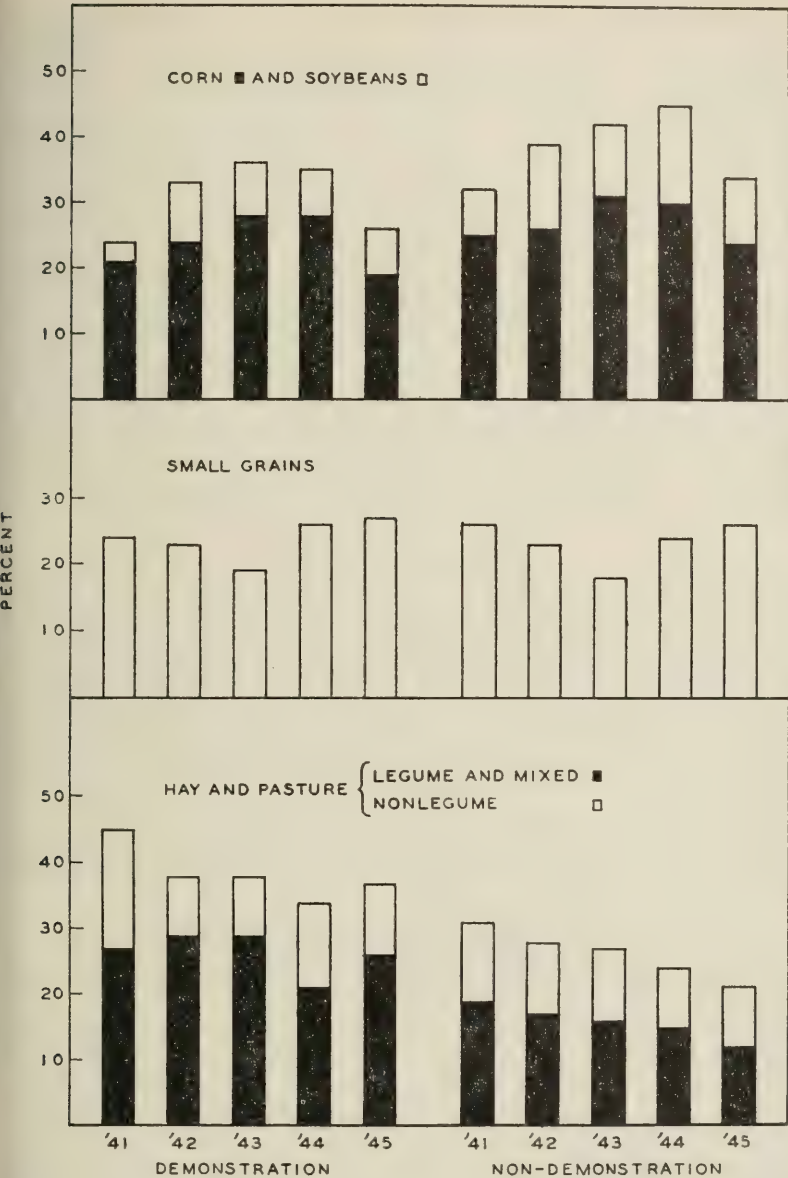


FIG. 2. — PERCENT OF TILLABLE LAND IN CORN AND SOYBEANS, SMALL GRAINS, AND HAY AND PASTURE, 1941-1945, DEMONSTRATION AND NON-DEMONSTRATION FARMS

Crop Yields

The records did not include yields of hay and pasture. For each of the grain crops yields were higher on the demonstration farms (Table 2). The difference was small for wheat and oats and was greatest for soybeans. For the five years, yields of corn and of all grains added together were approximately ten percent higher on the demonstration farms. No trend in yields was apparent on either group: unfavorable weather reduced corn yields materially in 1943 and 1944.

It is significant that the two groups of farms produced approximately the same quantity of corn. The demonstration farms averaged 49 acres and 2,158 bushels of corn per year. The non-demonstration farms average 55 acres and 2,227 bushels — they produced only 69 more bushels on six additional acres. Likewise, the total production of soybeans was not greatly different on the two groups of farms. Demonstrators averaged 15 acres and 244 bushels per year, non-demonstrators 22 acres and 288 bushels; the seven additional acres producing only 44 more bushels.

Livestock Production

The demonstration farms had fewer milk cows, more beef cows but fewer purchased feeder cattle, fewer hogs, and larger poultry flocks (Table 3). For the most part changes in livestock numbers from year to year followed the same pattern on both groups of farms. Neither group made much change in their cattle numbers, both increased hogs and poultry up to and including 1943 but reduced the scale of these enterprises in later years.

The demonstration program apparently had relatively little effect on the numbers of roughage consuming livestock on these farms during the

TABLE 3. — LIVESTOCK NUMBERS PER FARM, 1941-1945, DEMONSTRATION AND NON-DEMONSTRATION FARMS

	1941	1942	1943	1944	1945
Demonstration farms					
Cows milked.....	2.7	2.2	2.6	2.4	1.9
Beef cows.....	7	8	9	8	8
Feeder cattle purchased.....	4	4	4	7	5
Litters of pigs.....	8	10	14	9	10
Hens in laying flock.....	211	226	260	257	230
Horses.....	3	3	3	3	3
Non-demonstration farms					
Cows milked.....	3.3	3.5	3.5	3.6	4.1
Beef cows.....	3	3	4	4	4
Feeder cattle purchased.....	10	11	11	9	8
Litters of pigs.....	10	12	15	14	13
Hens in laying flock.....	137	170	197	172	148
Horses.....	3	3	3	3	3

year studied. The following data, summarized from Tables 1 and 3, are pertinent.

	Demonstration Farms		Non-Demonstration Farms	
	1941-42	1944-45	1941-42	1944-45
Acres in hay and pasture.....	86	87	75	66
Tillable land.....	80	80	59	46
Non-tillable land.....	6	7	16	20
Cows milked.....	2.4	2.2	3.4	3.8
Beef cows.....	7.5	8.0	3.0	4.0
Feeder cattle purchased.....	4.0	6.0	10.5	8.5

Comparing 1944 and 1945 with 1941 and 1942 the demonstrators made little change in the acreage used for hay and pasture and increased their cattle slightly, principally by purchasing two more head of feeders. The non-demonstrators reduced the acreage of hay and pasture and maintained cattle numbers practically the same. On both groups of farms changes in hog and poultry numbers were more significant than changes in cattle.

Livestock Returns

For the five-year period, and for each year except 1945, total livestock returns were higher on the non-demonstration farms, the difference being due mainly to larger income from hogs (Table 4). It is significant that the income from roughage-consuming livestock (the sum of the first three items in Table 4) was almost identical on the demonstration and non-demonstration farms. This suggests that the demonstrators were not making maximum use of their larger acreages of hay and pasture.

Without feed-distribution and pasture records there are no very reliable measures of differences in livestock efficiency. As indicated in Table 4, the value of feed fed to all livestock was lower on the demonstra-

TABLE 4. — LIVESTOCK RETURNS, FIVE-YEAR AVERAGE, 1941-1945,
DEMONSTRATION AND NON-DEMONSTRATION FARMS

	Demonstration Farms	Non-Demonstration Farms
Livestock returns per farm		
Dairy products.....	\$ 264	\$ 411
Cattle.....	851	752
Sheep.....	85	29
Hogs.....	2,300	2,703
Poultry and eggs.....	953	731
Total.....	\$4,453	\$4,626
Value of feed fed ¹	\$2,750	\$2,908
Returns per \$100 feed.....	162	145
Dairy returns per cow milked.....	112	114
Hog returns per litter.....	226	211
Poultry and egg returns per hen.....	3.94	4.43

¹ Does not include value of pasture.

tion farms but returns per \$100 worth of feed fed were higher. With the value of pasture not included, however, these differences are not significant. The demonstration farms averaged higher hog returns per litter farrowed, but lower poultry and egg returns per hen. The value of feed purchased averaged \$948 per year on the demonstration farms and \$1,095 on the non-demonstration farms. The difference between these two values was almost exactly the same as the difference between the total values of feed fed on the two groups of farms.

Financial Summary

For the five-year period net returns per farm and per acre averaged slightly higher on the non-demonstration farms (Table 5). This relationship prevailed in four of the five years. Total cash income averaged \$430 per year higher on the non-demonstration farms, mainly because of the difference in hog sales. Cash expenses were also higher on the non-demonstration farms, with higher feed purchases and machinery expenses more than making up for their lower expenses for land improvements and buildings.

Significance of Results

The objective of this analysis of 30 farms in the Wabash Valley area was to measure the effects of the test-demonstration program on farming systems, practices and returns. The results are significant: they probably represent a conservative measure of the effects of the test-demonstration program. It is evident that the demonstrators are practicing conservation farming to a greater extent than non-demonstrators with comparable resources, managerial abilities, and incomes. This is indicated by differences between the two groups of 15 farms in expenditures for land improvements and in the proportion of land in conservation crops. During the four

TABLE 5. — FINANCIAL SUMMARY, FIVE-YEAR AVERAGE, 1941-1945,
DEMONSTRATION AND NON-DEMONSTRATION FARMS

	Demonstration Farms	Non-Demonstration Farms
Total cash income.....	\$6,708	\$7,138
Total cash expenses.....	3,896	4,022
Cash balance.....	\$2,812	\$3,116
Inventory increase.....	687	747
Value of products used in household.....	322	367
Receipts less expenses.....	\$3,821	\$4,230
Value of family labor.....	276	296
Returns to operator's labor, capital and management.....	\$3,545	\$3,934
Value of operator's labor.....	720	812
Net farm returns.....	\$2,825	\$3,112
Net returns per acre.....	\$ 12.12	\$ 12.84

years for which specific data are available the demonstrators spent 50 percent more for land improvements. This is a conservative measure of the effect of the demonstration program. For one thing some of the 15 demonstrators were not particularly active in this program: four of them received no allocations of demonstration fertilizer in any of the five years. Also, if the high-test phosphate fertilizers allocated for demonstration purposes were figured at their commercial value, rather than at the cost to the demonstrators, the difference in land improvements between the two groups of farms would be somewhat higher. It is highly significant that the dollar value of fertilizer allocated by the Tennessee Valley Authority represents but a small part of the land improvement costs on demonstration farms. The striking point is that this fertilizer, and the demonstration program in which it is used, results in demonstrators using commercial sources and their own funds to finance a land-improvement program greatly in excess of that found on non-demonstration farms.

The effect of the test-demonstration program on acreages of row crops and of legumes is also significant. Wartime conditions were a dominant factor in land use throughout the period studied, influencing both demonstration and non-demonstration farms. During the war years demonstrators maintained approximately one-fourth of their tillable land in soil-building legumes, while the non-demonstrators reduced the proportion of such legumes from one-fifth in 1941 to one-eighth in 1945. Bushels of grain produced on the two groups of farms were practically the same. Demonstrators averaged 69 less bushels of corn annually, 44 bushels less soybeans, 61 bushels more oats, and seven bushels more wheat.

A similar study in other demonstration areas of the state would very likely indicate a greater difference between demonstration and non-demonstration farms, in land use and in the amounts of grains and roughage produced. Compared to the Wabash Valley area, other demonstration counties in general have less land suited to grain production, and more potential pasture and hay land that is idle or at a low level of productivity.

As a whole there was less difference in the livestock systems of the two groups of farms than would be expected from their differences in land improvements and land-use programs. In part this situation is influenced by the period studied and by the nature of agriculture in the area. Typical farming systems in the Wabash Valley area are built around grain rather than forage production, and hogs are by far the most important livestock. Poultry is an important enterprise, particularly in Edwards County. It would be expected, therefore, that adjustments to meet war-time demands were greater in hog and poultry production than in cattle or sheep.

On the other hand, the lag in livestock adjustments, needed to gain full benefits from a land-improvement program, is an extremely important phase of the demonstration program. That such livestock adjustments were incomplete on the 15 demonstration farms is probably the major reason for their lower average earnings in the period studied. There is, of course, a necessary lag between the time cash outlays are made for land improvements and the time such improvements can increase cash income from livestock. The land must be improved, seedings established, forage or grain yields increased, and the livestock must be available to utilize the increased feed production. Where the livestock system is increased or changed to any great extent problems of management and of capital requirements may be great enough to retard the adjustments. The development of plans for adjusting livestock programs to feed supplies is a major problem with many demonstrators.

From the fact that earnings were slightly lower on the 15 demonstration farms during the war years it cannot be concluded that the demonstration program was economically unsound. As pointed out above, the demonstrators had not adjusted their livestock programs to obtain full benefits of their land improvements and their improved pastures and hay crops. Also, prevailing conditions were particularly favorable, as a whole, for hog production, and the non-demonstration farms produced more hogs. Neither does the accounting system make any allowances for differences in the extent to which the two groups of farmers were building up, maintaining or depleting the productivity of their land.

J. E. WILLS

COUNTY SURVEY COMMITTEES TO RECOMMEND DRASTIC REDUCTION IN ILLINOIS SCHOOL DISTRICTS

Reports from 65 counties secured in a series of rural school reorganization conferences held in ten centers in the state of Illinois during September and October, 1947, attended by 320 people, indicate that there will be a reduction of 7,755 districts to 473 districts in these 65 counties. This means, if the recommendations of the county survey committees are accepted, there will be one-sixteenth as many districts in 1948 as there were in 1945. In 20 counties the county survey committees are either considering or have already approved the setting up of county unit districts. In 36 other counties, 186 community unit districts will be recommended, according to reports, leaving only nine of the 65 counties recommending the dual system of elementary consolidated schools and high school districts. Thus more than 85 percent of the 65 county survey committees are

planning to recommend or have already recommended county or community unit districts.

The counties recommending county units or community units are scattered all over the state. Those recommending or considering county units include Brown (which has already organized a county unit), Calhoun, Carroll, Clark, Crawford, Edwards, Effingham, Gallatin, Hardin, Jersey, Johnson, Lawrence, McHenry (which has already recommended a county unit in its tentative report), Massac, Morgan, Pulaski (which has already recommended a county unit in its tentative report), Randolph, Schuyler, Scott (which has already organized a county unit), and Union counties. From two to 11 community units per county are being considered or have been recommended by the county survey committee in its tentative report in Bond, Boone, Bureau, Champaign, Christian, Clinton, Coles, Cumberland, DeKalb, DeWitt, Douglas, Edgar, Fayette, Franklin, Fulton, Greene, Henderson, Henry, Jefferson, Kane, Kendall, LaSalle, Lee, McDonough, McLean (which also will have elementary consolidation), Macoupin, Madison, Mason, Menard, Montgomery, Ogle, Richland, Rock Island, Sangamon, Shelby, Whiteside, Will, and Winnebago. The total reduction in counties recommending county or community unit 12-grade systems will be from 7,253 districts to only 264, or less than three and one-half percent as many districts as there were in 1945.

This revolutionary change in the number of school districts in the state of Illinois has been made possible and has been encouraged by the enactment of the new community unit law. This law provides for the organization of school administrative districts with a minimum of 2,000 population and six million dollar valuation. The enactment of this law has encouraged an increasing number of county survey committees to consider the community unit or 12-grade system which will place all schools within the new district under one administrative board of seven members.

Reports from representatives of the 65 counties indicate that there is a growing desire, on the part of farm and rural people especially, to organize the larger community unit district in order to provide their children with better educational opportunities. They realize, too, that the organization of a community unit district will make it possible for them to change attendance units within the administrative district as road conditions improve and as materials for building purposes become more available. Many of the representatives realize that elementary consolidation meant the crowding of country children into already over-crowded village centers with limited building facilities. They, therefore, look with favor upon the administrative reorganization of districts under the com-

munity unit law, giving ample time for realignment of attendance units both on the high school and the elementary basis within the school districts themselves.

Considerable concern was exhibited by many county survey committee members and rural leaders at the lack of support and interest given by the rank and file of people in rural communities, especially in small towns, and by the opposition shown in some cases by businessmen, principals of small high schools and administrators. There was a widespread feeling that if the people in general really understood what was possible under administrative reorganization such as is provided by the community unit law, they would not hesitate to urge reorganization of schools on the basis of the 12-grade system, thus eliminating all other types of schools within the county. The leaders attending the conferences realized, also, that community unit districts had the advantage in being able to secure at least one-fourth more state aid for the support of their community unit district.

We know now that Illinois can have the best and most modern rural school system in the United States.¹ Our present legislation makes this possible but to have it we need leadership, widespread discussions, and cooperative planning and action on the part of the school patrons and voters in rural and urban areas of the state. We must think of the place of the schools in our society 20, 30, or 50 years from now. Otherwise we may come out of the present movement for reorganization of schools in Illinois with the most mixed up system we have ever had.

Ninety-three county survey committees in the state will be required by law to file their tentative reports by December 1, 1947, and their final reports by January 1, 1948. These county survey committees are required by law to make recommendations in their report which will provide for: (1) better educational opportunities for pupils and inhabitants of the county; (2) more efficient and economical administration of these schools; and (3) more equitable distribution of public school revenues. All the citizens of the county should know that these are the charges given to these survey committees. All rural organization leaders can help inform the citizens of the purposes and intent of the survey law.

¹ Much of this material has been taken from, "We Can Have Modern Rural Schools in Illinois," RSE-106, Extension Service in Agriculture and Home Economics, University of Illinois, Urbana. This report was prepared at the request of and approved by the Illinois Rural Education Committee by a subcommittee made up of David E. Lindstrom, University of Illinois College of Agriculture, Chairman; John Cox, Illinois Agricultural Association; Merle Sumption, University of Illinois College of Education; Irving Pearson, Illinois Education Association; Robert Cole, Illinois School Board Association; and George Bracewell, Southern Illinois University.

If county survey committees are to fulfill the above mandate, they should make the kind of recommendations they honestly feel will provide the best educational opportunities for pupils and inhabitants that can be provided. They should not take halfway measures, thinking that the people are not ready to accept what they believe will be the best system. Therefore, home bureaus and other similar groups should do everything under their power to study the recommendations of the county survey committees and then give the committees every possible support in seeing that these recommendations are understood by the people, and are accepted by them.

Three new laws passed at a recent session of the Legislature are particularly significant at the present time. All three of them, if used properly, will help county survey committees to make the right kind of recommendations and to carry out these recommendations in the county. Two of the laws, House Bill 340 and House Bill 575, were specifically designed to implement the work of the county survey committees. It was the intent of the Legislature that these two laws should be used together by the county survey committees in putting their recommendations into effect.

The first law, House Bill 340, was intended to prevent unwise and too hurried reorganization. It provides that no school district in a county with a county survey committee can petition for a change in school district boundaries unless the petition is presented in writing to the survey committee. The original bill provided that the survey committees should give their approval to the changes requested by the petitions, but an amendment was made which gave the committees the power to make suggestions only to the petitioners but to have no power to grant or deny the petitions.

The second law, House Bill 575, is the much-talked-of community unit law, which provides for the establishment of a community unit district including grades one through 12 from contiguous and compact territory, having a population of not less than 2,000 and an assessed valuation of not less than six million dollars. Such a district can be set up under this law upon petition to the county superintendent signed by 100 or more voters asking that an election be called to vote on the proposition. Votes from the incorporated territories and the non-incorporated territories are counted separately, and if both are favorable to the proposition, such a district will be established. If it fails in either one or the other, the proposition is dead.

The law provides, also, that where more than 72 square miles are included in the district, not more than three board members may be selected from any one congressional district, thus protecting the rural people

against the stacking of the board by any densely-settled area of the county or the community.

Upon the organization of a community-unit school district, all districts located within the territory are automatically dissolved, and the board is authorized to establish attendance units within the district. It is assumed that the board will establish those attendance units either in the country or in the villages or towns which the people of the new community unit district feel should be established. They can be established on a temporary basis when waiting to secure building materials and for improving roads.

Territory can be detached from or annexed to the community unit district, and boundary changes can be made in the district or in any consolidated district formed by action of the school trustees in the same manner as is provided for in the change of boundaries of a community consolidated school district.

The third law, which gives state sanction to the community unit or 12-grade district in the state, provides a lower qualifying rate for unit districts than for dual districts. Under the present law an eight-grade or elementary district can qualify for state aid by assessing itself 25 cents on a hundred dollar valuation. A high school district can also qualify by assessing itself 25 cents on a hundred dollar valuation. Together they must assess themselves 50 cents on a hundred dollar valuation. A unit district, however, can qualify for state aid by assessing itself only 37½ cents per hundred dollar valuation, so that it can qualify for state aid with one-fourth less effort than that put forth by dual districts combined. It is anticipated that the state will increasingly encourage the setting up of the community unit district by giving it more state aid than is given to the dual system.

It was recognized that even with the splendid favorable legislation enacted by the 65th General Assembly, additional legislation is needed to place the community unit system on a sound basis. In general, two things seemed to be lacking to establish the community unit school. First, a state planning body empowered to make decisions with respect to boundary disputes between counties, and second, a different financial basis for the maintenance of attendance centers so as to encourage attendance units with a sufficient number of children per teacher and to discourage those that have fewer than 15 in average daily attendance.

Most school authorities are agreed that a complete and modern program of education can be provided under a unified or 12-grade system. For rural areas this, of course, means the community unit system. The unified system should have a complete educational program for the school itself, special services and activities through which it can serve the com-

munity, and a 12-month program. To neglect any of these will penalize the rural citizen, both now and in the future.

A model organization of a modern rural school system in Illinois would be a unified community school system including the following:

1. One senior high school or more and as many schools for the lower grades as the community needs.

2. For each elementary school, probably one grade but certainly no more than two per teacher, and at least 100 pupils per school except in unusual situations.

3. For each high school at least 150 and preferably 300 pupils except in unusual situations.

4. All elementary and high schools in one administrative district under one board of education. Preferably this board should be chosen so that not more than three members will be from any one congressional township. The administrative district should have at least 500 pupils and preferably 1,000. Assessed valuation under present Illinois laws should not be less than 10 million dollars. Free transportation should be available to all pupils who live more than one and a half miles from the school, the system so organized as to keep elementary pupils on the bus not longer than 30 minutes each way between home and school, and high school pupils not longer than 45 minutes.


5. An administrative district with a corps of teachers and specialists, each trained for his particular work with an understanding of the people and the community in which he is to work.

D. E. LINDSTROM

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁶	Illinois				
	All commodities ¹	Farm products ²				In money ⁵	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	73	51	58
1933.....	66	51	57	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	102	101	90	86	85	86	80	87
1936.....	81	81	105	100	104	109	110	101	93	103
1937.....	86	86	118	104	108	116	112	107	111	113
1938.....	79	69	90	98	99	107	109	90	85	89
1939.....	77	65	84	97	99	107	110	106	100	109
1940.....	78	68	89	98	107	114	116	115	114	125
1941.....	87	82	112	103	142	146	140	138	163	162
1942.....	99	105	141	117	197	200	169	171	245	199
1943.....	103	123	165	127	251	243	191	209	330	239
1944.....	104	124	165	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1946.....	121	148	204	151	302	295	195	238	261	170
1946 July....	125	157	231	155	335	284	183	240	267	173
Aug.....	129	161	235	159	313	245	154	243	284	180
Sept.....	124	154	216	156	249	178	114	243	290	184
Oct.....	131	163	256	162	348	522	322	244	293	184
Nov.....	137	169	241	166	367	539	325	247	298	182
Dec.....	140	168	236	166	363	374	225	250	306	180
1947 Jan....	142	165	229	168	366	363	216	251	307	185
Feb.....	145	170	235	173	352	346	200	253	311	185
Mar.....	150	182	259	177	342	372	210	254	314	187
Apr.....	148	177	252	180	...	363	202	253	311	184
May.....	147	176	245	178	...	...	...	256	312	185
June.....	148	177	255	180	...	...	...	...	319	184
July.....	151	181	267	180	...	...	...	...	...	179

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			September 1946	Current months		
	1935-39	1945	1946		July	August	September
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.73	\$2.03	\$2.22	\$2.46
Oats, bu.....	.31	.68	.77	.73	.93	.97	1.11
Wheat, bu.....	.86	1.58	1.83	1.91	2.20	2.23	2.56
Barley, bu.....	.62	1.09	1.29	1.43	1.45	1.50	1.67
Soybeans, bu.....	.90	2.09	2.30	2.11	3.11	3.08	3.14
Hogs, cwt.....	8.52	14.25	17.53	15.80	24.40	24.90	27.60
Beef cattle, cwt.....	7.88	13.22	16.41	17.00	22.60	23.00	23.00
Lambs, cwt.....	8.36	13.77	16.38	16.00	22.60	22.60	22.50
Milk cows, head.....	58.00	125.50	147.00	156.00	175.00	175.00	175.00
Veal calves, cwt.....	8.66	13.99	16.78	16.20	23.30	23.10	24.00
Sheep, cwt.....	3.58	6.38	6.99	6.50	7.20	7.70	7.40
Butterfat, lb.....	.27	.48	.63	.74	.64	.69	.80
Milk, cwt.....	1.68	2.95	3.80	4.40	3.30	3.90	4.20
Eggs, doz.....	.19	.35	.31	.38	.39	.39	.47
Chickens, lb.....	.15	.25	.27	.30	.29	.27	.27
Wood, lb.....	.25	.43	.43	.43	.37	.39	.41
Apples, bu.....	1.08	2.99	3.37	2.40	2.20	2.00	1.95
Hay, ton.....	9.39	17.72	15.55	15.50	15.00	15.00	15.50
Potatoes, bu.....	.91	2.06	1.70	1.65	2.20	2.30	2.10

¹⁻¹² For sources of data in tables see preceding page.

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THE EUROPEAN CRISIS AND THE AMERICAN FARMER

Our security as a nation depends upon the prompt and successful economic reconstruction of western Europe. This area with its 270,000,000 people has the largest concentration of skill and ability outside of the United States. Before World War II it accounted for about 50 percent of the world's international trade. With our help western Europe can again become a large producer of both capital and consumer goods. Increased production, which makes possible higher living standards in these countries, is the only practical way to demonstrate the superiority of personal freedom and a democratic way of life over the nearby dictated and police-controlled economies.

The United States with six percent of the population now has 50 percent of the industrial production of the world. Our country is the only one which can supply in volume the urgent needs of western European countries. Our production facilities were untouched by war. Likewise, our civilian population was spared the psychological shock of bombing, raids, enemy occupation, and insufficient food.

Western Europe is the principal outlet for surplus farm products produced by the American farmer. In the prewar year of 1938 we exported \$682,962,000 worth of farm products or 8.9 percent of our total commercial farm production (Table 1).¹ Exports in 1938 including farm and industrial products amounted to 2.9 billion dollars. Hence, farm products accounted for nearly a fourth of our total exports. Failure of the countries

¹ Present exports of farm products are about five times the physical volume exported in prewar years. Restoration of prewar production in European countries will tend to reduce the demand for our farm products more nearly to a prewar level.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

TABLE 1. — EXPORTS OF AGRICULTURAL PRODUCTS FROM THE UNITED STATES, 1938^a

Product	Value
Cotton.....	\$175,106,000
Tobacco, leaf.....	143,695,000
Grains and grain products.....	139,310,000
Fruits.....	93,837,000
Meat and meat products.....	49,424,000
Vegetables and preparations.....	14,510,000
Feeds and fodders.....	10,895,000
Starch and sugar.....	7,934,000
Dairy products.....	6,381,000
Other products.....	41,870,000
Total agricultural exports.....	\$682,962,000
Total exports.....	\$2,884,687,000
Proportion that agricultural exports were of total exports....	23.7%

^a USDA Agricultural Statistics, 1942.

of western Europe to produce industrial goods in quantity will lower the price of every American farm product. A balanced world trade depends upon restoration of this important sector of our world economy.

Enlightened self-interest suggests that we do three things to help in the reconstruction of western Europe:

(1) Give food for relief during the present crisis resulting from drouth and five years of war. One of the most severe winters in recent years was followed by a drouth this summer which badly damaged the crops under production. Last year wheat exports from the United States totaled 400,000,000 bushels. Present estimates indicate that exports this year will have to be 600,000,000 bushels if the shortage of western Europe is to be met.

(2) Loan funds through some agency, such as a United States Reconstruction Finance Corporation, to rebuild and equip factories and rehabilitate overseas and internal transportation systems so that these countries can produce and transport needed goods. Ninety-six percent of the funds loaned through our Reconstruction Finance Corporation during its first few years of operation were repaid on time. Careful supervision by Americans is essential in a program of loans to Europe to insure that funds loaned are loaned wisely and spent only for productive purposes.

(3) Provide for repayments of loans in ways such as by our acceptance of needed goods from these and other countries and by a big expansion of the tourist trade to these countries.

Exports from the United Kingdom already exceed their prewar volume. Industrial production in France has doubled since August 1945 and is now 95 percent of prewar. In the Netherlands, production has tripled since V-J Day and is now 89 percent of prewar. This progress toward recovery has been made possible, to a considerable degree, by aid already made available to these countries since V-J Day.

A large expansion of the tourist trade to the countries in western Europe is another way to make possible repayment of loans to these countries. Thousands of Americans would enjoy traveling through European countries which need our aid and would do so if these countries would provide low-cost transportation and travel expenses. Michigan now has a \$400,000,000 a year tourist trade, which is second in importance to its auto industry. The total tourist business in the United States is now estimated to be around 10 billion dollars a year. A diversion of part of this trade to European countries would not only help in the repayment of loans but would give many Americans a first-hand contact with some of the problems facing the people in these countries. Ships adapted for tourist trade are rapidly going back into passenger service after being used as troop ships during the war.

R. W. BARTLETT

PROGRESSIVE FARMING¹

Continuous records from the same farm for many years record and tell a story that should help any farmer in the region in meeting his own problems. One of the striking things about such records is that they show a continued change in farm practice. In 1913 records were secured from 75 farms near Washington in Tazewell County. At that time there was only one farmer in the group who was trying out sweet clover pasture; five men had an acre or two of alfalfa; one had a small field of soybeans; most of the men who carried on any dairying were making butter on the home farm; hogs generally were fed to an age of ten months and about a year later the first tractors were purchased. Today's records would show marked changes.

At the close of the first World War many farmers remarked, "I never had any trouble getting a stand of clover until recently." Only an occasional farmer had used limestone. Now about three-fourths of the cooperators in the Farm Bureau Farm Management Service use limestone and rock phosphate as part of the regular system of farming, and careful tests are made to determine what the soil needs. Hybrid corn and other improved crops have greatly increased the yields, but this removes the fertility from the land that much more rapidly. Crop yields during the past ten years have averaged 30 percent higher than during the preceding ten years and a larger proportion of soil depleting crops, especially soybeans have been grown.

¹This is an abstract of a talk given before the Farm Bureau Farm Management Cooperators at Normal, Illinois, on September 12, 1947, at a meeting marking 22 years of the organization of that work.

Care must be given the soil. Soil conservation is a popular topic and to me it means to bring together all practices which will help preserve the productivity of the land. Many improved soil practices have developed since the first carload of commercial limestone was applied to the land in Illinois in 1902. With the present organized soil conservation work the use of limestone and rock phosphate, tiling, gulley control, terracing, contour farming, buffer strips, and other practices used in organized soil conservation programs represent drawing from every possible source those things which are profitable in maintaining the productivity of the land. Good care of central Illinois soil may increase its productive value by \$100 to \$200 an acre. Bringing the adapted practices into one farm plan should, in addition to a soil program and a cropping system, include the entire system of farming with the plan of livestock production which fits in with the crop production to make the farm a well-rounded business unit. The plan must provide for economy of operation and the kind of equipment fitted to the needs of the farm. With the advancement of new ideas, there is continual need of scrutinizing the entire plan to determine which practices are profitable and what equipment will pay its own way.

Over the past 25 years the cost of producing crops has been materially reduced. Compared with 1920 when thirty-two minutes of man labor were required to produce a bushel of corn, it now requires six. Man labor per bushel for soybeans has been reduced from fifty to ten minutes, and the total cost of producing other grain crops has been reduced by 30 percent or more. Similar reductions have not been made in livestock production, nor can similar improvements be made when feed represents from 50 to 80 percent of the cost of producing different classes of livestock. Better balanced feeding, disease control, and more efficient animals will help reduce costs, but livestock sanitation usually requires more labor and increases some other expenses. Looking to the future, the actual cost of livestock products may increase relative to the cost of grain crops. This situation calls for careful study of ways of reducing cost which will have much to do with the type of farm equipment provided for the future.

I have attempted to set forth the importance of soil conservation, the adaptation of livestock to the cropping system, the careful selection of equipment, and the development of means of making the farm an economically operated and efficient unit. One of the most valuable parts of the Farm Bureau Farm Management Service is that the field man in contacting the most progressive farmers in the region picks up new ideas, watches the success with which they are being used, and helps pass them on to other cooperators. He is able to advise others regarding which particular practices are profitable. In this respect the older the Farm Bureau Farm Management practice becomes, the more valuable it becomes. Con-

Continuous records from the same farms for many years are essential in measuring the relative merits of different systems of farming.

H. C. M. CASE

THE CHANGING CHARACTER OF SHORTENING PRODUCTS

Shortenings have become the major outlet for soybean oil, using about 50 percent of the 1943-46 production. Illinois farmers are therefore concerned with changes in shortening products as well as with the impact of such changes on the market for lard.

Shortenings in Relation to Lard

1. Improvements in shortening products.¹ The character of shortenings has changed considerably in the past 70 years. Late in the last century cottonseed oil was commonly incorporated in lard as an extender. An attempted corner of the Chicago lard market in June 1883 was reported to have been broken by such use of cottonseed oil and other fats.

Later, cottonseed oil was solidified with hard oils to make a product that was offered to the public as a lard substitute. Today, such compounds are usually much improved over the earlier product by better refining, deodorizing, and, sometimes, partial hydrogenation of the oil ingredients. About one-half of the compound production is thought to be used in households. The remainder is used by commercial establishments (restaurants, hotels, doughnut fryers, and some commercial bakers), whose class of trade does not justify the use of the more expensive all-hydrogenated shortenings.

The most distinctive changes in shortenings resulted from the more recent method of hardening vegetable oils (saturation with hydrogen). These all-hydrogenated shortenings are a higher class of products than compounds or lard. They are more thoroughly refined and deodorized, are more uniform, and have many times the stability of the other shortening agents. Their behavior in baked goods is more satisfactory with respect to the dispersion of the fat throughout the product, ability to incorporate air, and stability of the fat after baking. It is believed that hydrogenated shortenings formed one-third of the retail shortening sales in 1919; two-thirds in recent years.

Two special types of all-hydrogenated shortenings are manufactured for commercial users. The biscuit and cracker type is given even greater stability than the general purpose type in order that biscuits and crackers can retain their freshness for longer periods. A superglycerinated type

¹ Based in part on Bailey, A. E., *Industrial Oil and Fat Products*, 1945.

was developed in the thirties for use in baked goods that have relatively high sugar contents (e.g. cakes). The special problem of securing adequate dispersion of the fat in the presence of the sugar is met by the superior emulsification properties of these shortenings. It is believed that superglycerinated types form about one-quarter or more of the production of all-hydrogenated types. They usually sell for more than the general purpose types and their manufacture and use are covered by patents.

In recent years, about one-half of the shortening production was made up of the all-hydrogenated types, and about one-half was made up of the compound types. In the latter group, the all-vegetable compounds predominated.

On the whole, the character of lard products has not changed as much as shortenings. Prime steam lard usually consists of a blend of lards from different portions of the carcass. These may then be clarified, bleached and stiffened with leaf lard, lard stearine, or by partial hydrogenation.

Although lard is generally superior to shortenings in ability to lubricate the structure of baked goods, it usually is inferior in the other properties outlined above. However, some manufacturers have developed a lard product that is similar in its characteristics to the better quality shortenings. This is a relatively recent development which involves more extensive processing (and may involve important patents). A concerted effort by the packing industry to improve the general character of lard products has been underway for several years. If these efforts are successful the competitive position of lard will improve.

2. Consumers' reactions to shortening and lard. The changing character of shortenings, and sales efforts in their behalf, were ultimately responsible for (a) an increase in the price of shortenings relative to lard, and (b) a decrease in the substitution of these two classes of products for each other.

(a) The annual wholesale price of compounds averaged slightly less than the price of lard in 1916-29, but about 25 percent higher than lard in 1935-41, Table 1. Commercial bakers paid a four percent higher price per pound for shortenings than for lard in 1929 but 27 percent higher in 1939. And over the same period they increased their consumption of shortenings by 59 percent compared with 12 percent for lard. The retail price of shortenings averaged about 10 percent above that of lard in 1919-29; and 80 percent above it in 1935-41, Table 1.

(b) Consumers were about one-half as sensitive to changes in the relative prices of shortenings and lard in 1935-41 as they were in 1916-29. A small change in the relative prices of the two products in 1935-41 was associated with about one-half as much increase in the consumption of the

TABLE 1. — PRICES AND CONSUMPTION OF LARD AND SHORTENING, 1916-46

Year	Wholesale price per pound, average of New York & Chicago		Retail price per pound, leading cities in U. S.		Estimated U. S. per capita consumption	
	Lard ^a	Lard compound ^b	Lard	Shortening ^c	Lard ^d	Shortening ^e
	<i>cents</i>	<i>cents</i>	<i>cents</i>	<i>cents</i>	<i>lb.</i>	<i>lb.</i>
1916.....	13.4	12.4	....	....	12.0	9.7
1917.....	21.7	17.8	....	....	10.5	11.0
1918.....	25.6	23.8	....	....	12.3	10.6
1919.....	28.7	25.9	36.9	32.4	11.0	11.7
1920.....	19.8	19.8	29.5	31.4	12.2	6.7
1921.....	10.8	10.7	18.0	20.2	11.1	7.1
1922.....	11.2	12.4	17.0	20.1	13.5	6.8
1923.....	12.0	13.4	17.5	20.4	14.5	6.6
1924.....	13.0	13.5	18.8	22.1	14.5	7.1
1925.....	16.4	13.6	23.0	22.9	12.5	9.8
1926.....	14.7	14.3	21.7	22.9	12.4	9.6
1927.....	12.6	11.8	19.0	22.4	12.8	9.8
1928.....	12.0	12.4	18.3	23.2	13.3	9.4
1929.....	11.8	11.8	18.1	22.1	12.9	9.9
1930.....	10.6	10.9	16.8	21.5	12.7	9.8
1931.....	7.8	8.8	13.1	20.4	13.5	9.3
1932.....	4.8	6.0	8.7	17.6	14.3	7.5
1933.....	5.5	6.9	8.9	16.3	13.9	7.5
1934.....	8.0	8.5	11.7	17.0	12.9	9.4
1935.....	14.2	12.8	19.5	20.6	9.5	12.0
1936.....	11.4	12.0	16.4	20.3	11.2	12.3
1937.....	11.5	12.2	17.0	20.3	10.5	12.3
1938.....	8.3	10.0	13.0	18.4	11.0	11.5
1939.....	6.6	9.1	11.0	18.1	12.6	10.6
1940.....	5.6	9.0	9.4	17.2	14.3	8.9
1941.....	9.0	13.5	12.7	19.0	13.7	10.5
1942.....	12.8	....	17.2	23.6	12.9	9.6
1943.....	....	....	19.0	23.5	12.8	10.0
1944.....	....	....	18.7	23.6	12.5	9.7
1945 ^f.....	....	....	18.8	23.4	11.7	10.2
1946 ^f.....	....	....	26.3	....	11.6	10.0

^a Prime steam lard, tierces.^b Containing animal fat. Chicago price is quoted in tierces 1920-26; in hardwood tubs from 1927-June 1940; in 1-pound cartons, thereafter.^c Based on 75 percent hydrogenated shortenings and 25 percent compounds.^d Excludes lard used in manufacture.^e All types of shortenings.^f Preliminary.

cheaper product as in 1916-29, Figure 1. The scatter diagram of price and quantity ratios shows this upward shift in the substitution curve, and its steeper slope. In 1919-29, a one percent rise in the price of shortenings relative to lard was associated with a decline of 2.4 to 3.4 percent in the amount of shortenings consumed (relative to lard) while in 1935-41 the decrease was only 1.1 to 1.2 percent.¹

¹ The estimating equations are:

1916-29:

Price ratio = $125.97 - .395 \pm .073$ consumption ratioConsumption ratio = $247.52 - 1.800 \pm .332$ price ratio

1935-41:

Price ratio = $232.18 - 1.109 \pm .070$ consumption ratioConsumption ratio = $207.19 - .884 \pm .056$ price ratio

The elasticity of substitution was measured by the formula, $e = b \frac{p}{q}$ when quantity ratios were estimated from price ratios, and $e = \frac{1}{b} \cdot \frac{p}{q}$ when price ratios were estimated from quantity ratios. p and q are average values.

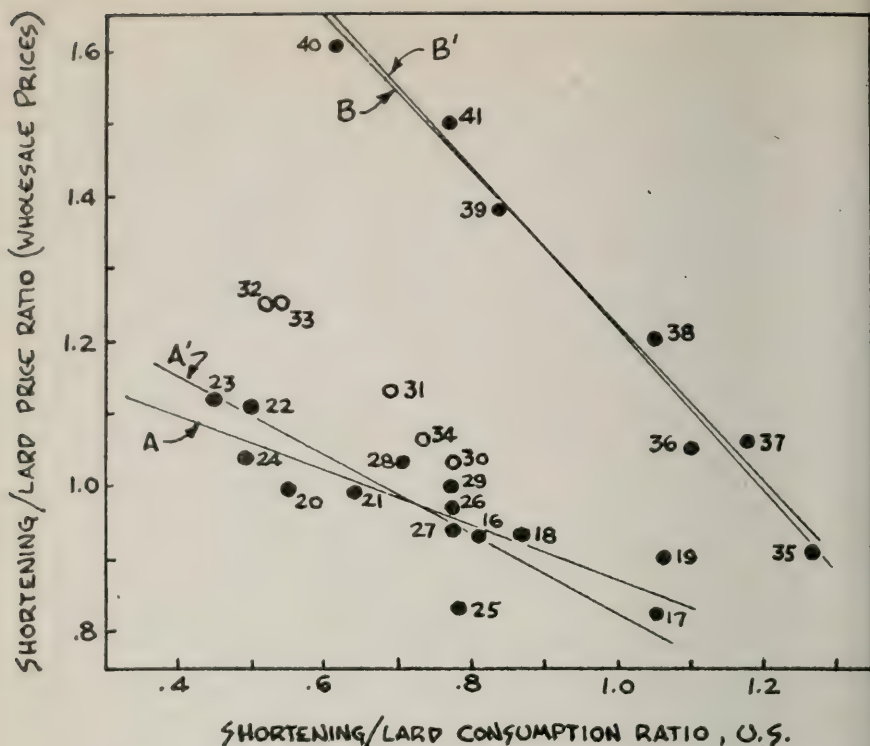


FIG. 1. — RELATIONSHIP BETWEEN SHORTENING AND LARD PRICE AND CONSUMPTION RATIOS, U. S., 1916-41

The vertical axis represents the ratio of the price of a pound of shortening at wholesale to the price of a pound of lard at wholesale (See Table 1). The horizontal axis represents the ratios of U. S. shortening consumption to U. S. lard consumption. The dots indicate the relationship between relative prices and relative consumption for individual years, 1916-41. The years 1930-34, represented by circles, are not included in determining the substitutability curves.

If lard and shortening were equally acceptable to consumers, their prices should be approximately equal (a ratio of 1:1) because any significant disparity in their prices would cause consumers to substitute the cheaper product for the more expensive one and cause their prices to come into line. Hence, if shortening and lard were equally preferred by consumers, the dots would describe a horizontal line (substitutability curve). The less substitutable two commodities are, the steeper will be their curve. A vertical curve can occur only between two commodities that complement each other in use — i.e., consumers will purchase each in equal proportions regardless of their relative prices. Shortening and lard have not been perfectly substitutable or perfectly complementary. Hence, their substitutability curves are neither horizontal nor vertical — but they have a negative slope. The flatter the slope the more substitutable they are.

Lines A and A' are the substitutability curves in the 1916-29 period, measured by two different methods (see footnote). Lines B and B' show the curves for the 1935-41 period. Although the wholesale prices used to represent shortenings do not represent the all-hydrogenated component, the use of retail prices which largely do represent this component, in the place of the wholesale series, gives results similar to those shown above (with respect to shifting and steepening of the curve). An ideal price ratio series for such an analysis would be one that combined the various prices according to the importance of the type they represented. Results similar to those shown above would probably be obtained.

Or to put the matter another way, when lard prices fall, consumers are not as easily attracted away from shortenings as formerly and lard prices must fall still further (relative to shortenings) to clear the lard supplies. An illustration of this phenomenon appears to be the sharp decrease in wholesale lard prices in May-August 1947 from their January-April level, when domestic lard supplies became abundant. Wholesale lard prices decreased 39 percent at Chicago; lard compound prices decreased only 14 percent. Hydrogenated shortenings at New York decreased 18 percent. In former years, lard prices probably would not have been depressed as much under similar supply conditions.

Costs and Margins

1. **Costs.** Associated with the general improvement of shortening products are the increasing efforts of the individual manufacturer to differentiate his products from those of his competitors. The differentiation of shortenings may involve both (a) product improvement, and (b) advertising. Both of these tend to increase his costs.

(a) Costs usually increase when a more highly refined, more stabilized, or special purpose product is turned out since a smaller volume can be produced with given amounts of time, energy, and equipment. Furthermore, the importance of prepackaging increase and the better shortenings are put up in more expensive containers.

(b) Advertising of branded shortenings has also become a significant factor in costs. In 1940, twenty corporations manufacturing soaps and cooking fats spent 11 cents of each sales dollar on advertising.¹ While the shortening products may not be advertised as extensively as the soaps, it is significant that the leading soap manufacturers are also the major producers of branded shortening products. Creation of a national or regional market for a product is usually associated with large outlays for advertising. For example, in 1936 the manufacturer of "Spry" introduced the product to the public by a door-to-door canvass: "Some 10,000,000 pounds of shortening had thus been placed in at least one-third of all the homes in America at a cost of about \$4,000,000 (including the cost of a supporting advertising campaign)."²

2. **Margins.** Generally, increases in manufacturers' costs are covered by increased margins. It is possible to show this for 1929 and 1939, the end years of a decade in which the improvement and differentiation of shortenings were pronounced.

In 1929 shortening plants retained 11.0 cents of each dollar of

¹ Advertising as a Factor in Distribution, Distribution Methods and Costs. Reports of the Federal Trade Commission, Pt. V., 1944, p. 7.

² Fortune, April, 1939, p. 152.

TABLE 2. — PRODUCTS OF SHORTENING PLANTS, 1929 AND 1939

Year	No. of plants	Percentage composition of output			Percentage of U. S. production	
		Shortenings	Salad and cooking oils	Other products	Shortenings	Salad and cooking oils
1929.....	40	63.5	27.5	9.0	67.0	84.0
1939.....	56	59.0	32.0	9.0	86.0	85.0

Census of Manufactures.

product manufactured and 89.0 cents were paid out for materials and containers. In 1939, 18.3 cents were retained, or 66 percent more than in 1929. But since margins that are based on the value of products are influenced significantly by the prices paid for materials, a correction for the lower vegetable oil prices in 1939 is essential. This may be done by calculating the margin per pound of oil consumed in shortening plants. On a physical basis, then, the margins were 1.42 cents (per pound of oil utilized) in 1929 and 1.90 cents in 1939 — or a 34 percent increase.¹

That this 34 percent increase in margins was associated with the improvement and differentiation of shortening products is suggested by the relatively large increase of the margins of the dominant plants in the industry. In 1929, the dominant plants had virtually the lowest margins in the industry; in 1939, they had relatively higher margins, Figure 2.² It is common knowledge that the large plants belong to the large firms who have done most to improve, differentiate, and advertise their products.

Margins were increased mainly through an increase in the selling price of shortenings. For example, the New Jersey shortening plants, which were among the largest in the industry, sold shortenings at a price three percent below the average U. S. manufacturer's price in 1929, but 19 percent above, in 1939.

¹ Based upon the formula: $p + 2.2 + \left(\frac{X_1}{X_2} \cdot X_3\right) = X_3$ wherein

p = cost of oil consumed in shortening plants, per pound.

2.2 = cost of containers and non-oil materials per pound of oil consumed (based on data for 1929 given in Census of Manufactures).

X_1 = value added by manufacture (including fuel, electricity), for the industry.

X_2 = value of products, for the industry.

X_3 = value of products per pound of oil consumed.

$\left(\frac{X_1}{X_2} \cdot X_3\right)$ gives the margins indicated above.

² In Figure 2 comparisons should be made between the different size groups in the same year, rather than between years for the same size group. The level of vegetable oil prices declined markedly from 1929 to 1939 and therefore affects comparisons between years significantly. Furthermore, the analysis of plant size and margins has no necessary relationship to the problem of determining the most economical scale for the individual plant.

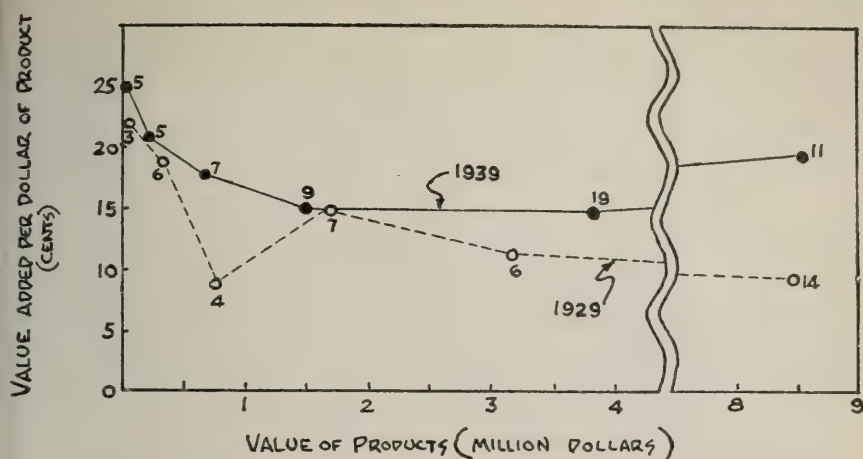


FIG. 2. — RELATIONSHIP BETWEEN SIZE AND MARGINS IN SHORTENING PLANTS, U. S., 1929 AND 1939

In 1929, the margins of the dominant shortening plants were among the lowest in the industry; in 1939, they were among the highest. It may be significant that in the same period (a) manufacturers of shortenings increased their efforts at improving, differentiating, and advertising their products, and (b) consumers showed increasing preference for shortenings as compared with lard. The figure opposite each dot gives the number of plants represented by the dot.

Significance of the Results

1. **For soybeans.** Consumers prefer certain functional characteristics (stability, carry-through, creaming quality, etc.) and certain non-functional characteristics (e.g., color, texture, and perhaps odor, consistency and taste) in modern shortenings for which they pay premiums. These preferences form the basis for manufacturers' sales appeals. Thus an improved product has brought a wider demand for shortenings and, in recent years, a broader outlet for soybean oil.

TABLE 3. — VALUE OF PRODUCTS, COSTS AND MARGINS OF SHORTENING PLANTS, 1929 AND 1939

	1929	1939
	(millions)	(millions)
Value of products.....	\$154.55	\$186.25
Cost of materials and containers.....	137.61	152.24
Cost of materials.....	114.07	
(Cost of vegetable oils).....	(112.48)	
Value added by manufacture (including fuel and purchased electrical energy).....	16.94	34.01
Value added per dollar of product.....	11.0 cents	18.3 cents
Value added per pound of oil consumed.....	1.42 cents	1.90 cents

2. **For lard.** The existence of these consumer preferences indicates the direction in which lard products can improve their competitive position in the future. Concerted efforts by meat packers are being made to make such improvements in lard, and important headway has been reported (e.g., increased stability).

A. B. PAUL

CHINESE AGRICULTURE AS I SAW IT¹

I have been asked to tell from my experiences in other countries some of the things which impress me as I come back to the heart of Illinois, an area that to my mind has no superior when it comes to high-class farming and the high standard of living which this land affords.

I remember a little incident that occurred on the farm of Mr. Cleary up in Woodford County nearly twenty years ago. Old Doctor Sering, one of the leading agricultural economists of his day from Germany, visited the farm of Mr. Cleary. When we went to the farm, Mr. Cleary took us out to the center of the farm where hogs were being raised on a field of alfalfa and clover under the McLean County system of swine sanitation. Adjoining this field there were soybeans, corn, oats, wheat, and meadow, consisting of alfalfa and clover. Doctor Sering asked many questions about what was done on that farm and when Mr. Cleary had finished answering these questions he turned to him and said, "My friend, you do not appreciate all that you have here. In our country we must buy feed shipped from a distance in order to balance up the feeding of our livestock, but here you have everything and on some of the most wonderful soil to be found anywhere in the world. You don't have to buy your protein concentrates. You grow them on your own farm and you grow tremendous yields of feed crops. My friend, you do not realize how fortunate you are."

I fear many of us do not appreciate the diversity of agriculture we have in this area, and the extent to which it can be adapted to meet all the needs of the farm without buying much feed in order to balance up the feeding of livestock. Again there is no country that has adapted machinery for use in farming to the extent we have in this country. Contrast, for example, the fact that one man may work perhaps up to 200 acres of cropland in this area while in China the average farm is between two and three acres in size and the entire family is kept busy in operating it. That means that the agricultural production per worker in this area is probably 50 to 100 times as great as it is in China. This doesn't apply to agriculture alone but it applies to every phase of industry as far as I have

¹ Part of a talk given before the Farm Bureau Farm Management Cooperators at Normal, Illinois, September 12, 1947.

been able to observe. It means that a day's labor in this country is probably 50 times as productive on an average as it is in China. Again let's add the fact that in China it requires four families out of five just to produce food or it leaves one out of five to produce goods and render services for the others. This will show you that there are few manufactured goods available for the average person to use in China.

I think we should have a picture of the drudgery that goes on in China as a whole. It was my privilege about a year ago now to be some 300 miles west of Chungking in one of the oldest irrigation districts in China. Records show that it was at least 3,000 years old. Yet it seemed to me that the practices followed in that area were almost as primitive as they were 3,000 years ago. The valley was a very productive one with a gentle slope to it so the water fell about a foot to every mile and when we got up to the head of the valley we found that the water was diverted from a good-sized river for the irrigation of the land. Each year the farmers laid a jetty of rocks packed into bamboo baskets about two feet in diameter and about 20 feet long piled in rows out into the stream to divert part of the water for irrigation purposes. We were told that during the winter when the storms came the baskets would be cut to pieces by rocks and farmers would levy a labor tax on all the people in the valley to turn out and help rebuild that jetty. It was an annual affair to build that jetty to divert water for irrigation.

As we went out along the road we saw the loads of coal on two-wheeled carts with one coolie between short shafts balancing a load which was probably 12 or 14 feet in length. Six to ten coolies would be pushing or pulling this two-wheeled cart loaded with grain, tobacco, or coal to market. I am satisfied that on some of those two-wheeled carts as much as two tons of coal were being hauled a distance of 35 miles into Chengtu by human labor. We watched those men straining at the ropes used to pull the cart. They had the slow movement of a team of horses plodding down the road with a heavy load and with just about as much interest in life. As I pondered that situation, I couldn't help but feel that with their primitive methods they have never been able to accumulate enough surplus in the form of capital to build a good dam which would not only have supplied water for irrigation, but might easily have afforded a transportation canal to float the products down to Chengtu, a distance of 35 miles. Also if capital were available, an electric power plant might have been erected to furnish power which might have been used for weaving and other purposes which would have conserved labor and turned out more goods for the people to use. There is nothing comparable to the use we make of mechanics in the agriculture of any other country. Yet it is a means of increasing a product per worker, and helps raise the standard of living to the highest of any nation in the world. A number of things

I have said have emphasized that we certainly have not yet reached the limit that we will go in effecting greater economies in the production of food in this country.

We have heard a great deal about the conservation of soils in China and yet I am sure that many of us have the wrong impression. I know I did not have a correct idea of what was being done in handling the soil. It is true that every bit of organic matter is carefully conserved in pits and used as fertilizer. On the other hand, there is much poor land in China. One approaches China looking down upon the Yangtze peninsula, for example, east of Shanghai or the mouth of other rivers and can see the muddy water, — the sediment which is being carried by those rivers and the flood plains which have been built up by the washing of the rivers over the centuries and which now afford some of the richest farming land to be found in that country. When we were in China we were looking at one of the rivers flowing under the old Marco Polo Bridge at Peiping and we were told that the river was carrying anywhere from 30 to 60 percent of its weight in soil particles or silt. I never saw such a muddy stream before in my life. Much of the silt was being deposited in the channel of the river. When floods came they simply spread out over the land for several miles in width because the river channel could not carry it. I should tell you what the country looked like where this soil came from.

Later on we were back near the source of the Yellow River and were flying over what had been an old plateau. As one looked down on it, he saw the grooves where the roads had been worn for four thousand years as people trod the same roads. They were worn down so deeply in many places that people could not look out over the banks at the side of the road across the country. Then as we went on across that plateau we found that washing had taken place in many places. You would find that these old roadways had become gullies, and you would see gullies running right up to the towns from different directions. Later on we got to country where it was so badly eroded that there was no longer room up on the old level for the towns, and the towns were moving down to lower levels along the rivers and streams. Where the country is so severely washed, we saw as many as 40 to 60 terraces up a single hillside, many of them, perhaps, not giving a level space more than a rod in width and many of them very short. You have heard that in some places in China they literally carry the soil back up hills to rebuild terraces. That is what is going on in that area. Later on, when we were on the ground, we found that some of those gullies were as much as 400 feet deep, cut down through deep loess or windblown soils. Much of the soil in that area was rich, productive land, which had been deposited by wind over the centuries but now was being eroded and washed away after the trees had been removed from the land.

You ask why the soil is not conserved. They are doing their best, in a hard way, to rebuild their terraces and to hold the soil, but the soil lacks organic matter which is needed to hold it in place. Trees have been cut off of land which should never have been cleared in order to provide more land on which to produce food in a country greatly overpopulated. For example, China has less land in cultivation than the United States, or only about half as much land in cultivation, as we have in this country and approximately three times the population. That means the density of people in relation to cropland is six times as great as in our country. It means that the per capita food supply is so scarce that the diet is practically a vegetable and grain diet. Livestock cannot be afforded in any great numbers. I asked a Chinese farmer through my interpreter how much meat his family ate. He replied that they used one dried duck a month. It means that crops are grown and every bit of the crop used.

In some places the rice straw is pulled up by the roots and dried for fuel. It is a common practice in the rice paddies where water is let on from above to plow the land under water. As to the reason why they work their land in that way — I came to the conclusion, after being on some of the land, that after it once dries out it gets so hard that you couldn't plow it because there is no organic matter in it. The way to carry on farming under those conditions is to work the land while it is wet and to keep the water on the land as much of the time as possible. Then we agreed on another thing: The tremendous amount of silt which is carried down by the rivers is later turned from the rivers into irrigation ditches or pumped up on the land by human treadmills and that water, which is heavy-laden with soil, is drawn off onto the rice paddies and the sediment settles on the rice paddies. Much of this silt is rich in mineral matter but lacks nitrogen. I am sure one of the biggest factors in maintaining the productivity of soil there is the recovery of a large part of that soil when it is deposited on the rice paddies perhaps several hundred miles from where it originated.

This is an exaggerated picture of what is taking place in our own country where our land is much newer. Many of you have been down the Mississippi Valley and know the extent to which the Mississippi River overflows and deposits silt over the bottomland and farther down in the Gulf of Mexico. This is the same thing which has been taking place for four thousand years in China, but which has only been taking place in a large way in this country since we put our land under the plow and made it possible for the water to wash away much of the surface soil. It should, however, afford a lesson to us in practicing practical soil conservation. We have a heritage here in central Illinois which we do not half appreciate. We must develop a system of farming which will conserve the soil on a permanent basis or we cannot afford our present standard of living in this country.

H. C. M. CASE

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ¹	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	73	51	58
1933.....	66	51	57	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	102	101	90	86	85	86	80	87
1936.....	81	81	105	100	104	109	110	101	93	103
1937.....	86	86	118	104	108	116	112	107	111	113
1938.....	79	69	90	98	99	107	109	90	85	89
1939.....	77	65	84	97	99	107	110	106	100	109
1940.....	78	68	89	98	107	114	116	115	114	125
1941.....	87	82	112	103	142	146	140	138	168	162
1942.....	99	105	141	117	197	200	169	171	245	199
1943.....	103	123	165	127	251	243	191	209	330	239
1944.....	104	124	165	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1946.....	121	148	204	151	302	295	195	238	261	170
1946 Aug.	129	161	235	159	313	245	154	243	284	179
Sept.	124	154	216	156	249	178	114	243	290	180
Oct.	131	163	256	162	348	522	322	244	293	182
Nov.	137	169	241	166	367	539	325	247	298	183
Dec.	140	168	236	166	363	374	225	250	306	182
1947 Jan.	142	165	229	168	366	363	216	251	307	189
Feb.	145	170	235	173	352	346	200	253	311	189
Mar.	150	182	259	177	342	372	210	254	314	190
Apr.	148	177	252	180	...	363	202	253	311	187
May	147	176	245	178	...	...	...	256	312	185
June	148	177	255	180	...	...	...	...	319	184
July	151	181	267	180	...	...	...	...	314	176
Aug.	154	182	276	184	...	...	...	...	...	182

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			October 1946	Current months		
	1935-39	1945	1946		August	September	October
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.70	\$2.22	\$2.46	\$2.27
Oats, bu.....	.31	.68	.77	.90	.97	1.11	1.12
Wheat, bu.....	.86	1.58	1.83	1.96	2.23	2.56	2.77
Barley, bu.....	.62	1.09	1.29	1.45	1.50	1.67	1.65
Soybeans, bu.....	.90	2.09	2.30	2.29	3.08	3.14	3.15
Hogs, cwt.....	8.52	14.25	17.53	23.00	24.90	27.60	28.40
Beef cattle, cwt.....	7.88	13.22	16.41	20.00	23.00	23.00	21.40
Lambs, cwt.....	8.36	13.77	16.38	19.50	22.60	22.50	20.00
Milk cows, head.....	58.00	125.50	147.00	160.00	175.00	175.00	175.00
Veal calves, cwt.....	8.66	13.99	16.78	19.30	23.10	24.00	24.00
Sheep, cwt.....	3.58	6.38	6.99	8.70	7.70	7.40	7.40
Butterfat, lb.....	.27	.48	.63	.89	.69	.80	.68
Milk, cwt.....	1.68	2.95	3.80	4.70	3.90	4.20	4.45
Eggs, doz.....	.19	.35	.34	.47	.39	.47	.48
Chickens, lb.....	.15	.25	.27	.37	.27	.27	.26
Wool, lb.....	.25	.43	.43	.44	.39	.41	.41
Apples, bu.....	1.08	2.99	3.37	2.50	2.00	1.95	2.20
Hay, ton.....	9.39	17.72	15.55	16.00	15.00	15.50	18.00
Potatoes, bu.....	.91	2.06	1.70	1.55	2.30	2.10	2.10

¹⁻¹¹ For sources of data in tables see preceding issue.

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OPPORTUNITIES IN POULTRY ON SOUTHERN ILLINOIS FARMS

This article reports one phase of a broad study of opportunities in farming, and of desirable adjustments in farming, in the rolling upland area of southern Illinois. Other phases of the study will be reported in later publications. In the entire study the Bureau of Agricultural Economics of the United States Department of Agriculture cooperated with the Department of Agricultural Economics of the University of Illinois.

Farms in the rolling upland area of southern Illinois are typically small and the land is primarily suited to pasture and hay production rather than to intensive cropping. A farmer on this land must include three things in his program to increase income:

(1) He must improve his land to increase the yields of pasture and hay, and yields of the limited acreage of grains that can be grown.

(2) He must keep dairy cattle, beef cattle, or sheep to use the forage crops he produces.

(3) He must have enterprises that will employ himself and his family profitably throughout the year.

Poultry fits well on these small farms, primarily because it utilizes labor that is available on most farms. The comparatively mild winters make expensive poultry housing less necessary than in areas farther north. Poultry offers another advantage especially pertinent in the area: quality of the flock and volume of production can be quickly improved. By buying high-quality chicks any farmer can in six months raise a top-notch flock of pullets. A disadvantage of poultry on these upland farms

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

is that much of the feed must be purchased because these farms are largely grassland.

With a need for an enterprise to use available labor, a poultry flock has a place on most southern Illinois farms. Efficiently managed, it is profitable even when much or all of the feed is purchased. A considerable part of the eggs and chickens marketed in other areas is also produced on purchased feeds.

In the eight counties included in the rolling upland area of southern Illinois eight out of nine farmers were keeping chickens in 1945.¹ The average size of flocks was small, 75 hens per farm on January 1. Egg production per hen in 1944 was estimated as 112, considerably lower than the 146 eggs per hen for the state as a whole, as reported by the Bureau of Agricultural Economics. Part of this difference is due to the small size of flocks in the eight-county area. Small flocks, kept mainly to produce for home use, are usually given less care than larger flocks where production is on a commercial basis.

Profitable Production Practices

In the fall of 1946 detailed information was obtained on poultry enterprises on ten upland farms in Johnson County. Farms with 75 or more layers were selected, as representative of farms with moderate-sized flocks up to 200 hens. They did not represent superior management, and did not have elaborate poultry houses or equipment. The flocks were paying for overhead investment and returning a profit to the owners. Any farmer who followed proven practices of poultry management could have done as well.

How these farmers managed their flocks and the results they obtained are summarized in Table 1. Flocks averaged 160 hens and pullets at the beginning and 100 birds at the end of the laying season. Egg production averaged 184 per hen, based on the average of 130 hens in the flock during the year: this was an average of 150 eggs per hen housed at the beginning of the laying season.

Pullets made up 80 to 100 percent of the flock at the beginning of the laying season. Farmers who replaced the entire flock with pullets were quick to defend the practice. Experience had taught them that keeping hens over from the previous year often does not pay. Pullets have higher rates of lay and lower death losses. They are smaller, take less feed, and are more active. Second-year birds develop more non-layers as the season progresses. Experiment station records verify the experience of these poultrymen.

¹ U. S. Census. Average is for the following counties: Hardin, Pope, Massac, Johnson, Union, Alexander, Pulaski, and Jackson.

TABLE 1. — AVERAGE PRODUCTION FACTORS, TEN POULTRY FLOCKS, LAYING YEAR BEGINNING OCTOBER 1, 1945, JOHNSON COUNTY, ILLINOIS

Item	Average of ten farms	Range	
		Low	High
Number of hens and pullets, beginning of laying season.....	160	75	235
Number of hens, end of laying season.....	100	0	160
Average number (sum of number each month ÷ 12).....	130	69	178
Eggs produced by flock, dozens.....	1,988		
Eggs sold, dozens.....	1,860		
Eggs used on farm, dozens.....	128		
Grain fed to laying flock, lbs.....	6,758		
Mash fed to laying flock, lbs.....	5,870		
Total feed to laying flock, lbs.....	12,628		
Feed per hen, lbs.....	97	82	123
Number of baby chicks bought.....	236	100	506
Number of chickens raised.....	206	80	450
Percent of chickens raised.....	88	80	95
Total feed to young chickens, lbs.....	4,919		
Feed per chicken raised, lbs.....	24.5	21	29
Feed fed layers per dozen eggs, lbs.....	6.4	5.0	9.1
Potential number of eggs per hen, based on amount of feed fed ^a	189	119	240
Actual number of eggs produced per hen.....	184	114	233

^a Estimated by the formula developed by L. E. Card in Illinois Circular 606. Pounds of feed = $(8 \times \text{average weight of hens}) + (\text{average number of eggs laid} \div 7) + 25$.

All of these farmers fed both mash and grain; slightly more than half of the total feed was mash. Only one farmer mixed his own mash. Mash was fed in self-feeders on part of the farms. The common practice was to feed grain near nightfall. On all of these farms fresh water was kept before the birds at all times. In most cases water was prewarmed in coldest weather, but only one farmer had a fountain that would maintain constant water temperature.

The common practice was to confine the laying flock until noon, then give it the run of the farmyard. Flocks were confined all day on cold winter days and during stormy weather. None of these poultrymen made special arrangements for grass range; the flocks had whatever range they could find in season.

All of these farmers raised pullets from straight-run chicks. They bought good chicks, from record flocks, available from reputable hatcheries. Most chicks were bought in March or early April. Commercial brands of chick starter and growing mash were used, and care was taken that chicks were started in clean brooders.

According to the farmers surveyed, southern Illinois poultrymen are experiencing difficulty with their pullets molting after they have started to lay. Their solution is to avoid buying chicks too early. The idea is to have the pullets start laying after the period of hot weather, but early enough to take advantage of favorable fall and winter egg prices.

The more successful farmers carefully watched the condition, health

and comfort of the birds, and frequently culled out non-layers. Culling should be a continuous process carried on throughout the year.

Seasonal Production and Returns

Both egg production rates and egg prices vary a great deal from month to month. To illustrate the effect of these variations on monthly egg returns, 1936-1942 prices were applied to production data from Johnson county survey flocks (Table 2). Using this method returns over feed costs increase rapidly from 3.0 cents per hen in October to 20.4 cents per hen in December; they decline to about 13 cents in January and February, but recover to about 16 cents in March and April. In May returns over feed costs begin to fall and continue falling to 4.1 cents per hen in August and 1.7 cents per hen in September.

What comparative monthly returns over feed costs mean on a flock basis is illustrated in Table 3 and Figure 1. In this analysis it is assumed that the laying season starts with 100 pullets in the flock, the number declining each month as some die and others become non-layers and are culled out. Egg production per month, returns from eggs, amounts and cost of feed, and returns over feed cost are calculated on the basis of the rates given in Table 2. Returns over feed cost rise from \$2.69 in October to \$19.15 in December, then fall to \$12.21 in January. From January through April returns are about the same each month. During this period egg production increases on farms all over the country and the price falls, the returns over feed costs remaining about the same. Beginning in May returns over feed costs decline rapidly until they are so

TABLE 2.—ESTIMATED EGG PRODUCTION, GROSS RETURNS, COST OF FEED, AND RETURNS OVER FEED COSTS PER HEN BY MONTHS, SURVEY FLOCKS

Month	No. of eggs produced ^a	Price per doz., cents ^b	Returns from eggs, cents	Feed required, lbs. ^c	Cost of feed, cents ^d	Returns over feed cost, cents
October.....	8	24	15.8	6.9	12.8	3.0
November.....	12	29	29.0	7.5	13.9	15.1
December.....	15	28	35.0	7.9	14.6	20.4
January.....	16	21	28.0	8.0	14.8	13.2
February.....	19	18	28.5	8.5	15.7	12.8
March.....	23	17	32.6	9.0	16.7	15.9
April.....	23	17	32.6	9.0	16.7	15.9
May.....	20	18	29.9	8.6	15.9	14.0
June.....	20	17	28.2	8.6	15.9	12.3
July.....	16	18	23.9	8.0	14.8	9.1
August.....	12	18	18.0	7.5	13.9	4.1
September.....	8	22	14.5	6.9	12.8	1.7

^a Average number of eggs produced per hen in the laying flock in the particular month, nine survey flocks with monthly records.

^b Illinois average monthly price of eggs, 1936-1942, adjusted to southern Illinois.

^c Estimated at 5.75 lbs. per hen plus one pound for each seven eggs produced.

^d Calculated at \$1.85 per cwt., the 1936-1942 average cost of laying ration.

TABLE 3.—ESTIMATED EGG PRODUCTION, GROSS RETURNS, COST OF FEED, AND RETURNS OVER FEED COST, AT 1936-1942 PRICES, BY MONTHS FOR A FLOCK WITH 100 PULLETS AND HENS AT THE BEGINNING OF THE LAYING SEASON

Month	No. of pullets or hens	Eggs produced, dozens	Returns from eggs	Feed required, pounds	Cost of feed	Returns over feed cost
October.....	100	64	\$15.36	685	\$12.67	\$ 2.69
November.....	96	92	26.68	710	13.14	13.54
December.....	93	117	32.76	736	13.61	19.15
January.....	88	121	25.41	714	13.20	12.21
February.....	86	136	24.48	728	13.46	11.02
March.....	83	156	26.52	745	13.78	12.74
April.....	81	153	26.01	729	13.48	12.53
May.....	78	129	23.22	666	12.32	10.90
June.....	73	121	20.57	628	11.62	8.95
July.....	69	92	16.56	555	10.27	6.29
August.....	67	65	11.70	497	9.19	2.51
September.....	66	43	9.46	454	8.40	1.06
Total, 12 mo.....		1,289	\$258.73	7,847	\$145.14	\$113.59
Total, First 10 mo.....		1,181	237.57	6,896	127.55	110.02
Total, First 9 mo.....		1,089	221.01	6,341	117.28	103.73

low in August and September that very little is left to pay for the work and other expenses of keeping the flock.

What can farmers do about this late summer decline in net returns? Lower returns are due to egg production falling off more rapidly than feed costs; it takes feed to maintain the hens whether they are laying or not. If egg production is low because all hens in the flock are laying intermittently, say every third or fourth day, the solution would be to dispose of the entire flock late in the summer. Some farmers were doing just that in 1946, selling their entire flocks early in August. Under price and other conditions assumed in Table 3, the yearly returns above feed cost would be reduced only \$3.57 by keeping the hens only ten months.

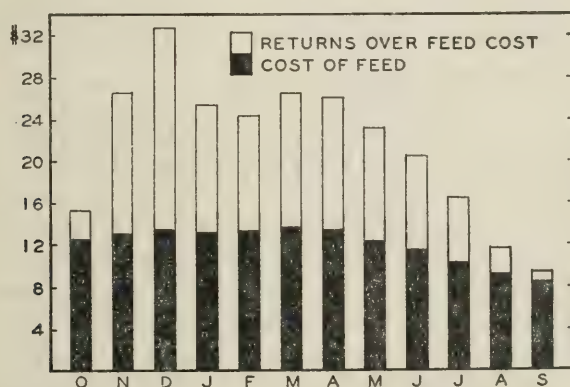


FIG. 1.—ESTIMATED GROSS RETURNS FROM EGGS, COST OF FEED, AND RETURNS OVER FEED COST, AT 1936-1942 PRICES, BY MONTHS FOR A FLOCK WITH 100 PULLETS AND HENS IN OCTOBER

Normally, however, the decline in egg production is not due to intermittent laying, but to a portion of the hens becoming non-layers. There is a practical method of detecting these non-layers, and they can be culled from the flock and sold. Their removal will reduce feed costs but not egg production. From Table 3 we can estimate the effect of culling on returns over feed costs. Assuming that culling would maintain the rate of lay at 50 percent in August and September, instead of 67 birds in August there would be 52, and instead of 66 in September there would be 34. Egg production would remain the same as in Table 3. Feed costs would drop from \$9.19 to \$7.58 in August, and from \$8.40 to \$4.98 in September. By this selective culling returns over feed cost would be increased by \$5.03 for the two months. In returns over feed cost the advantage of culling would be \$8.60 over selling off the entire flock at the end of ten months.

The above analysis illustrates the way monthly egg production rates, seasonal egg prices, and the decline in the number of hens from month to month would influence returns with prices at 1936-1942 levels. In any particular year the actual returns over feed cost, and the month-to-month variations in such returns, will depend on the ratio of egg and feed prices prevailing at the particular time. Furthermore, returns over feed cost do not measure net profits from the poultry enterprise. Feed is the largest single item of expense, however, and on many farms in southern Illinois, it is largely a cash expense. Labor, normally the second largest expense, is a low-cost, non-cash item on these farms. Practical housing need not be costly in this area, and it is a fixed charge against the business for the year, or for a longer period. For these reasons the return over feed cost is a most significant indicator for the poultryman. Where feed is purchased from week to week or month to month the return over feed cost is also a measure that the poultryman can readily determine.

Estimated Cash Returns from Eggs and Poultry

With prices at 1936-1942 levels, a flock starting with 200 pullets can reasonably be expected to yield a net cash return of \$248, or to return about 50 cents per hour of work required to care for the flock (Table 4). This is generally considered a minimum-sized flock for economical management. In estimating receipts and expenses as summarized in Table 4, production rates, feed and other requirements are adapted from the data obtained in Johnson County. It is assumed that selective culling is practiced throughout the year, egg production averages 165 per hen in the flock during the year, and 85 percent of the chicks purchased are raised. These rates are below what was accomplished on the survey farms in 1946. In other words, the returns summarized in Table 4 can be expected from a flock producing market eggs, with reasonably good management, and with prices similar to 1936-1942. Current or anticipated net returns

TABLE 4. — ESTIMATED RECEIPTS, EXPENSES, AND NET RETURNS
FROM A FLOCK STARTING WITH 200 PULLETS

Item	Dollars
Cash receipts	
Egg sales, 2,240 doz. at 21 cents.....	\$470
Sale of cull hens, 170 at 75 cents ^a	128
Sale of broilers, 225 at 50 cents ^b	112
Total cash receipts.....	\$710
Cash expenses	
Laying mash, 62 cwt. at \$2.40.....	\$149
Grain for layers, 76 cwt. at \$1.40.....	106
Chick starter and growing mash, 40 cwt. at \$2.40.....	96
Grain for growing chickens, 40 cwt. at \$1.40.....	56
Total expense for feeds ^c	\$407
Medicines, disinfectants, etc.....	\$ 5
Brooder fuel, egg cartons.....	10
Baby chicks, 500 at 8 cents.....	40
Total cash expenses.....	\$462
Net cash returns.....	\$248
Buildings and equipment, annual charged.....	\$ 40
Returns to labor.....	\$208
Returns per hour of labor ^e	\$ 0.51

^a Assumes remainder of laying flock sold at end of 12 months' laying season.

^b Sold at 14-16 weeks. Number includes inferior pullets.

^c Includes use of high protein mash with minerals, salt and oystershell.

^d Includes depreciation and upkeep.

^e Based on standard of 244 hours of labor per 100 hens. Includes labor for growing chicks.

can also be estimated by substituting other prices for the 1936-1942 prices used in this analysis.

Opportunities in poultry and egg production are not limited to those illustrated above. Some poultrymen can take advantage of special markets and realize higher-than-average prices. Such opportunities include selling eggs to hatcheries or to restaurants, hotels, or private customers, and sale of dressed poultry. For farms which cannot use all available labor in production, time effectively spent in marketing and processing of products may significantly increase incomes.

On the production side one practical method of reducing cash expenses and increasing net returns on small farms in southern Illinois is the feeding of skimmilk or buttermilk to reduce the amount of mash fed. When green range is available the flock can be satisfactorily fed on grain and milk free-choice, along with oystershell and grit. Skimmilk is usually available, particularly on small farms where dairy cows use the pasture and hay crops.

Poultrymen in southern Illinois would be greatly benefited by an improved market for quality eggs. A system of buying eggs on a graded basis would increase prices and returns to producers. Such a system should be an essential part of a poultry and egg program for the area.

WARREN R. BAILEY and J. E. WILLS

ILLINOIS FARM LAND MARKET FACTS FROM A THREE-COUNTY STUDY

For most of 14 years Illinois land prices have advanced. In the last half of this period it has seemed worth while to get a view, every three months, of what three counties, Champaign, McHenry and Ogle, were revealing. Buyers interested in dwelling houses and limited acreage were active in one or more parts of each county, and will be given attention in the present treatment beyond their numbers because of their special influence on land prices. In general the picture is one of little speculative purchase by non-farmers. Corporations bought some farm land in McHenry and Ogle Counties, but, except for local areas, represented no large proportion of the land sold. Some debts on land were assumed by buyers and some new mortgages were placed, but cash was paid down by farmers and by others to an extent believed unusual. Again, except for local areas, the period 1941-1946 had no unusual amount of land selling. Considering the amount of advance in farm real estate prices, it may be surprising that there was so little boom feeling.

A close view of land sales in these counties will be summarized here with special reference to (1) the volume of land sales, by seasons and by years, (2) the extent to which land was moving in areas of higher and lower quality, and (3) the effects of the seeking of dwelling places by persons active in or retired from urban pursuits.

Some Effects of Time of Year

The first quarter of the year usually finds a number of land sales going on record that were contracted several months before. Even when land was sold in May 1947, for example, the deed may not be filed for record until March 1948.

In Champaign County, the area of land in recorded sales in the first quarter was nearly $2\frac{3}{4}$ times that in the second quarter (Figure 1). This means that in Champaign County, over 3,600 acres out of 8,300 acres sold were in the recordings for the first quarter of the year. It is clear that, on the average, a three-month period with a large amount of land transferred stands a chance of bringing to record sales that are representative of the soil types and grades. Less can be expected of quarters which, in counties as large as these, bring in too much less than 3,000 acres.

How Representative Were the Six Years?

A smaller proportion of the farm land of Champaign County was sold in the six years, January 1941 to December 1946, than of either McHenry or Ogle counties. Even in 1944 where farm land sales were at lowest ebb in McHenry and Ogle counties (2.2 and 2.0 percent of the

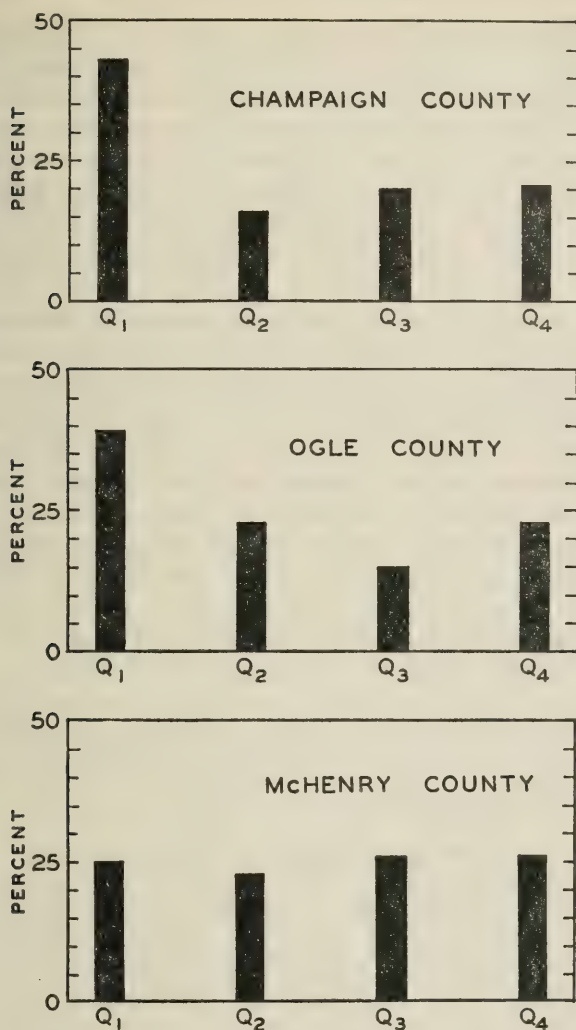


FIG. 1.—PROPORTION OF RECORDED SALES OF FARM LAND IN SELECTED ILLINOIS COUNTIES RECORDED IN EACH THREE-MONTH PERIOD IN THE YEARS 1941-1946

1945 census totals) only 0.9 percent of the farm land of Champaign County was shown in recorded sales. It appears that where land sales have been so rare as in Champaign County, entire years may find farms of unusual type being transferred.

It must be noted, moreover, that recorded sales do not include all land transfers. The process of inheritance alone may be expected to shift titles

to about two percent of the land in an Illinois county. In some periods foreclosures have been active, but in the 1940's they have been practically at zero. There are some transfers of land as gifts among living persons, largely or entirely for "love and affection." Husbands and wives often execute deeds to bring into effect joint tenancies. There is the practice of trading one farm or farm tract for another. The recorded sales used in this study omit cases of this type and, therefore, do not show the entire transfer picture. The emphasis here is upon commercial types of land transfer.

It is probable that not only in the three counties but throughout the state, the period 1941 to 1946 found commercial transactions in land at low ebb. Disregarding the cases in which the same land moved twice or more in the six years, the ratio of land sold to total acreage in the three counties averaged, as indicated above, 15.2 acres in 100, or 2.5 percent a year. More than one parcel of land remains untransferred from the early youth to the death of an elderly person. On the other hand some parcels of land have several transfers in a decade and not always for speculative purposes. Ordinarily we expect to find about six to seven percent of the land changing hands in an average year and not more than a third of it by inheritance. On that basis the activity in Champaign County could hardly be placed at more than 40 percent of normal in 1941-1946.

In Ogle County, where only three percent of the land was in recorded sales, it would appear that land market activity was no more than 75 percent of normal. In McHenry County the extent of activity except in 1945 and 1946 was possibly a little above normal.

Farm Land Prices Advanced at Different Rates

In these counties, as in much of Illinois, land prices increased between 1941 and 1946 (Figure 2). The 1945 drop in average consideration in land recordings in Champaign County was \$12 an acre, but in 1946 the recovery was such as to erase the drop and add about \$22 an acre to the 1944 price. In McHenry County, too, 1944, a year of little land market activity, showed a recession of about \$4 an acre. Apart from these minor incidents, one sees a stubborn upward trend in each of the three counties from 1941 to 1946, at rates which can be expressed as follows: Champaign County, 1.1 percent a month; McHenry, 1.0 percent a month; and Ogle, 0.9 percent a month. These rates of change express increases in dollars per acre as follows: Champaign, \$111; McHenry, \$70 and Ogle, \$55.

In each county the average value of farm land and buildings, as shown by the census, was ascertained for each township. Where a township's average values fell in the upper third of the range from top to bottom for the entire county, it was designated as in group 1. Where the town-

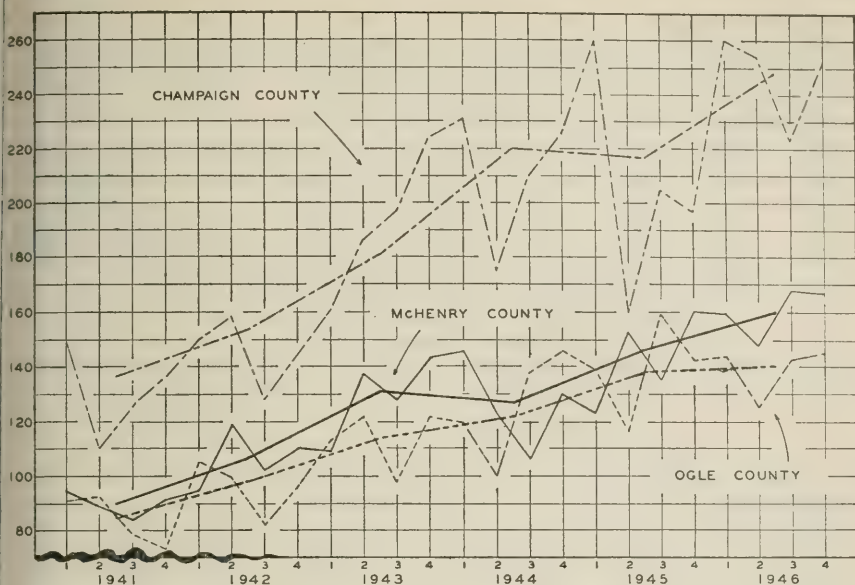


FIG. 2. — SELLING PRICE IN DOLLARS PER ACRE OF FARM LAND IN THREE ILLINOIS COUNTIES, BY QUARTERS AND BY YEARS, 1941-1946

ship average values fell in the lower third of the range, in group 3. The remaining townships were put in group 2 (Table 1).

Recordings at the courthouse for the six years 1941-1946 show areas totaling 217,000 acres in the three counties, with considerations totaling nearly 30 million dollars, those of McHenry coming to the largest totals in both respects. Both in acres sold and in total considerations, group 2 (intermediate price) townships led in McHenry and Ogle counties, and group 3 (lowest price) townships led in Champaign County.

Rates of change in farm real estate values will be shown first, according to the census, 1940-1945, and then according to recordings, 1941-1946.

The aggregate values of farm real estate reported by the census in 1945 were 38 percent higher than in 1940 in McHenry County, 43 percent higher in Ogle County and 60 percent higher in Champaign County (Table 2).

Land Prices Increased Most Where Already Highest

It will be observed that all six of the township groups of Ogle and McHenry counties showed rates of increase in average value per acre, 1940-1945, below those of the three groups in Champaign County. The spread of \$13 an acre between township groups in McHenry County, 1940, was doubled by 1945, and the spread of \$26 between township

groups in Champaign County, 1940, was multiplied by three. In Champaign County, as in the other two counties, there was a larger increase, percentagewise, in the group 1 townships. The group 1 townships in Champaign County had the largest rate of increase of any of the nine groups.

The recorded sales, when in sufficient volume, can be presumed to reflect current market prices better than the estimates which census takers

TABLE 1. — ACRES AND VALUES OF FARM LAND (INCLUDING BUILDINGS), TOTALS, 1940 AND 1945, CENSUS, AND AMOUNTS IN RECORDED SALES, 1941-1946, CHAMPAIGN, McHENRY, AND OGLE COUNTIES, AND TOWNSHIP GROUPS, OF HIGHEST, INTERMEDIATE, AND LOWEST AVERAGE VALUES

	Acres (000 omitted)				Values (000 omitted)			
	Total	Township Group ¹			Total	Township Group ¹		
		1	2	3		1	2	3
Champaign County								
Recordings								
1946.....	7	1	2	4	\$ 1,779	\$ 354	\$ 578	\$ 847
1945.....	8	3	2	3	1,737	698	515	524
1944.....	6	2	2	2	1,250	532	413	305
1943.....	8	2	2	4	1,382	359	481	542
1942.....	11	2	3	6	1,722	366	531	825
1941.....	10	3	3	4	1,400	526	463	411
Total.....	50	13	14	23	9,270	2,835	2,981	3,454
Census								
1945.....	609 ²	195	193	221	\$139,522 ²	\$51,562	\$43,890	\$42,215
1940.....	595 ³	186	195	214	83,406 ³	28,435	27,484	27,134
McHenry County								
Recordings								
1946.....	17	4	7	6	\$ 2,745	\$ 728	\$ 1,089	\$ 928
1945.....	16	6	6	4	2,349	911	916	522
1944.....	7	2	4	1	959	314	462	183
1943.....	13	3	7	3	1,726	434	943	349
1942.....	19	5	9	5	2,007	504	1,005	498
1941.....	18	6	8	4	1,647	607	727	313
Total.....	90	26	41	23	11,433	3,498	5,142	2,793
Census								
1945.....	346 ²	112	148	86	\$48,093 ²	\$17,213	\$20,044	\$10,836
1940.....	349	115	149	85	35,057	12,178	14,962	7,917
Ogle County								
Recordings								
1946.....	13	4	5	4	\$ 1,846	\$ 628	\$ 790	\$ 428
1945.....	15	6	5	4	2,143	988	692	463
1944.....	9	2	4	3	1,066	333	429	304
1943.....	10	3	4	3	1,131	466	399	266
1942.....	13	3	4	6	1,332	455	408	469
1941.....	16	5	6	5	1,403	525	501	377
Total.....	76	23	28	25	8,921	3,395	3,219	2,307
Census								
1945.....	447 ²	156	169	122	\$55,489 ²	\$23,396	\$20,662	\$11,431
1940.....	459	165	172	122	40,870	17,896	14,618	8,356

¹ Champaign County townships are as follows: group 1, Ayers, Champaign, Colfax, Ogden, Pesotum, Sadorus, Scott, Stanton, and Urbana (9); group 2, Brown, Crittenden, Hensley, Rantoul, Sidney, Somer, South Homer, St. Joseph, and Tolono (9); group 3, Compromise, Condit, East Bend, Harwood, Kerr, Ludlow, Mahomet, Newcomb, Philo, and Raymond (9). McHenry County townships are as follows: group 1, Algonquin, Burton, Chemung, Dorr, Dunham, and Nunda (6); group 2, Grafton, Greenwood, Hebron, Marengo, McHenry, Riley, and Seneca (7); group 3, Alden, Coral, Hartland, and Richmond (4). Ogle County townships are as follows: group 1, Buffalo, Dement, Eagle Point, Flagg, Lafayette, Lincoln, Lynnville, Mt. Morris, and Woosung (9); group 2, Byron, Forreston, Grand De Tour, Maryland, Monroe, Oregon, Pine Creek, Scott, and White Rock (9); group 3, Brookville, Leaf River, Marion, Nashua, Pine Rock, Rockvale, and Taylor (7).

² Total does not include farm land in incorporated areas as follows: Champaign County, 6,713 acres (\$1,855,000); McHenry County, 5,145 acres (\$102,000), and Ogle County, 25,601 acres (\$4,681,000).

³ Total does not include farm land in Cunningham or Champaign city townships, 1,852 acres (\$347,000).

TABLE 2. — AVERAGE VALUE OF FARM LAND (INCLUDING BUILDINGS) PER ACRE, BY COUNTIES AND TOWNSHIP GROUPS, CENSUS 1940 AND 1945

	Total	Township group			Spread between township groups	
		1	2	3	Amount	Percent ¹
Champaign County						
1945.....	\$226	\$264	\$227	\$191	\$73	32
1940.....	140	153	141	127	26	18
Increase, percent.....	60	73	61	50	..	..
McHenry County						
1945.....	\$140	\$154	\$135	\$127	\$27	19
1940.....	101	106	101	93	13	13
Increase, percent.....	38	45	34	37	..	..
Ogle County						
1945.....	\$127	\$150	\$123	\$ 93	\$57	45
1940.....	89	108	85	69	39	44
Increase, percent.....	43	39	45	35	..	..

¹ Based on average for county.

get from the persons they find operating the farms. Nevertheless if one compares the 1945 census figures on average value per acre with the 1945 courthouse recordings (Table 3) he is impressed with the consistency between the estimates made by farmers and the prices that resulted from negotiations.

Highest Priced Land Moved Least in Transactions

A comparison of Tables 1 and 3 brings out more clearly what has happened in the three counties. In 1940-1946, to take the last three years only, the land that was selling in Ogle County in highest volume was largely in the higher value township group, but apparently did not include a full proportion of the highest grade farm real estate. In Champaign County the land that was selling in highest volume in those three years was in the lower value township group and included a considerable amount of real estate selling below the average for that group. In McHenry County it was the intermediate value township group that had concentration of sales in 1944-1946 (as also in 1941-1943), but real estate that was valued close to the average of these intermediate townships was prominent in these transfers.

Champaign County recordings show that the average consideration per acre in group 3 (lower-value) townships increased 111 percent from 1941 to 1946 as compared with 75 percent for group 2 and 77 percent for group 1. In Champaign County it seemed to be pretty much a case of lower quality land being bid up. Many farmers were able to save money during the war period and were willing to invest it in the less costly land rather than to place a heavy mortgage on land of the higher grades. Activities at Chanute Field, Rantoul, had influence on the market for land in some of the lower-value townships. Personnel employed in con-

nection with Chanute Field found dwellings in various townships in the northern half of the county and in some cases had to purchase some farm land in order to get a place to live.

The situation in McHenry County is primarily one of location with reference to railways with commuting service to and from Chicago. In group 3 townships the average price paid increased 86 percent from 1941 to 1946 as compared with 78 percent in group 2 and 76 percent in group 1. Many of the lower-value townships in McHenry County had favorable location for railway and highway connections with Chicago and associated outlying cities. Many Chicago businessmen bought 40-acre tracts in order to have what they call a country estate and still, by commuting, carry on their business in or near that city.

City Buyers Active in Parts of Counties

In Ogle County middle-class land was being bid up more than the other classes. Nearness to the Green River Ordnance Plant during the war and nearness to Rockford and Dixon, where many persons had to buy homes in the country in order to have a place to live, doubtless influenced the farm land market in Ogle County, but perhaps to less extent than Chicago influenced McHenry County.

TABLE 3.—PRICES PER ACRE OF FARM LAND (INCLUDING BUILDINGS), COURTHOUSE RECORDINGS, BY TOWNSHIP GROUPS, THREE ILLINOIS COUNTIES, 1941-1946

Year land sales were recorded	Average dollars per acre				Ratio (%) of township group average to county average		
	Total	Township group			Township group		
		1	2	3	1	2	3
Champaign County							
1946.....	\$248	\$285	\$245	\$236	115	99	95
1945.....	214	259	232	163	121	108	76
1944.....	220	272	237	153	124	108	70
1943.....	181	193	211	156	107	117	86
1942.....	154	172	155	146	112	101	95
1941.....	137	161	140	112	118	102	82
Increase	perct.	perct.	perct.	perct.			
1941-1946.....	80	77	75	111	...	...	..
McHenry County							
1946.....	\$160	\$169	\$157	\$158	106	98	99
1945.....	146	163	152	116	112	104	79
1944.....	127	134	129	116	106	102	91
1943.....	131	138	132	119	105	101	91
1942.....	107	112	109	100	105	102	93
1941.....	90	96	88	85	107	98	94
Increase	perct.	perct.	perct.	perct.			
1941-1946.....	78	76	78	86	...	...	..
Ogle County							
1946.....	\$140	\$145	\$156	\$114	104	111	81
1945.....	138	166	134	104	120	97	75
1944.....	122	144	116	113	118	95	93
1943.....	114	136	116	88	119	102	77
1942.....	98	132	97	79	135	99	81
1941.....	85	97	80	77	114	94	91
Increase	perct.	perct.	perct.	perct.			
1941-1946.....	65	49	95	48	...	...	..

In the period 1941-1946 numerous farm properties in McHenry County, fewer in Ogle and still fewer in Champaign, were apparently selected for purchase for the joint purposes of providing the buyer with land for farm uses and of providing a residence for a family whose main activities were elsewhere. The dwelling facilities may provide housing for urban earners until they retire from that activity or in some cases may house owners already retired from non-farm activities or from all enterprises.

In most parts of the state where cropping practices are suited to large scale operations rural dwelling houses have been at a discount. Where a very large city is nearby or insofar as county seat cities and other places have industrial or other populations willing to occupy houses in areas outside of the cities, the discount on rural dwelling houses may be stopped or reversed.

City Buyers Sometimes Pay Well for Farm Tracts

In general a set of buildings is an asset, not only because of the dwelling but also because of the barns, milk houses, and other buildings. All structures are replaceable, of course, only at figures higher than at almost any time before 1940. Commuters have been bidding for good, commodious rural dwellings and to some extent for the associated farm structures.

A certain amount of rough acreage, especially where there are conditions suitable to creating a kind of summer resort, may be an asset.

To some extent factors that make a place attractive to city-based buyers make the same place attractive to others. Where there is an inpouring of city buyers, it will not always be profitable for persons wanting land only for farming purposes to hold out against the competition of such buyers. Where a farmer can find a place of retirement within or not too far from the community in which he has friendships among farm people, he and his family may reap advantages in addition to avoiding the special costs that might face him in an area to which big city buyers are attracted.

Farm land owners in areas where urban buyers have been present have doubtless gained from having their properties in good condition at the time of selling them. Dwelling houses well painted, surrounded by well-kept lawns, can mean much to prospective buyers who are not planning construction of new houses. For those thinking of building soon on the land they buy, the farm land owner with acreage to sell can wisely point out, or have his agent point out, spots on the farm that he himself has considered especially suited to use as new building sites.

C. L. STEWART and F. D. HANSING

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 1-48—9400
Permit No. 1247

TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings		Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰	
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶				In purchasing power ⁷
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39	
1932.....	65	48	56	96	60	57	60	73	51	58
1933.....	66	51	57	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	102	101	90	86	85	86	80	87
1936.....	81	81	105	100	104	109	110	101	93	103
1937.....	86	86	118	104	108	116	112	107	111	113
1938.....	79	69	90	98	99	107	109	90	85	89
1939.....	77	65	84	97	99	107	110	106	100	109
1940.....	78	68	89	98	107	114	116	115	114	125
1941.....	87	82	112	103	142	146	140	138	168	162
1942.....	99	105	141	117	197	200	169	171	245	199
1943.....	103	123	165	127	251	243	191	209	330	239
1944.....	104	124	165	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1946.....	121	148	204	151	302	295	195	238	261	170
1946 Sept....	124	154	216	156	249	178	114	243	290	180
Oct.....	131	163	256	162	348	522	322	244	293	182
Nov.....	137	169	241	166	367	539	325	247	298	183
Dec.....	140	168	236	166	363	374	225	250	306	182
1947 Jan.....	142	165	229	168	366	363	216	251	307	189
Feb.....	145	170	235	173	352	346	200	253	311	189
Mar.....	150	182	259	177	342	372	210	254	314	190
Apr.....	148	177	252	180	348	363	202	253	311	187
May.....	147	176	245	178	343	356	200	256	312	185
June.....	148	177	255	180	350	328	182	...	319	184
July.....	151	181	267	180	347	374	208	...	314	176
Aug.....	154	182	276	184	337	275	149	...	334	182
Sept.....	157	186	297	186	360	254	137	...	337	186

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			December 1946	Current months		
	1935-39	1945	1946		October	November	December
Corn, bu.....	\$.66	\$1.07	\$1.39	\$1.18	\$ 2.27	\$2.24	\$2.45
Oats, bu.....	.31	.68	.77	.80	1.12	1.11	1.20
Wheat, bu.....	.86	1.58	1.83	2.04	2.77	2.82	2.90
Barley, bu.....	.62	1.09	1.29	1.40	1.65	1.80	2.00
Soybeans, bu.....	.90	2.09	2.30	2.74	3.15	3.55	3.81
Hogs, cwt.....	8.52	14.25	17.53	23.00	28.40	24.80	25.20
Beef cattle, cwt.....	7.88	13.22	16.41	19.00	21.40	20.80	20.80
Lambs, cwt.....	8.36	13.77	16.38	20.40	20.00	21.40	22.00
Milk cows, head.....	58.00	125.50	147.00	165.00	175.00	180.00	180.00
Veal calves, cwt.....	8.66	13.99	16.78	20.10	24.00	24.40	25.00
Sheep, cwt.....	3.58	6.38	6.99	6.90	7.40	7.40	7.90
Butterfat, lb.....	.27	.48	.63	.82	.68	.76	.82
Milk, cwt.....	1.68	2.95	3.80	4.85	4.45	4.40	4.45
Eggs, doz.....	.19	.35	.34	.37	.48	.47	.55
Chickens, lb.....	.15	.25	.27	.27	.26	.24	.25
Wool, lb.....	.25	.43	.43	.44	.41	.41	.41
Apples, bu.....	1.08	2.99	3.37	2.55	2.20	2.25	2.55
Hay, ton.....	9.39	17.72	15.55	16.50	18.00	19.50	20.50
Potatoes, bu.....	.91	2.06	1.70	1.55	2.10	2.10	2.10

¹⁻¹¹ For sources of data in tables see September-October issue.

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LOOKING TO A LONG-RANGE AGRICULTURAL POLICY

The greatness of our country has been due largely to an abundant supply of natural resources and the high degree of specialization in production which has given a large output per worker in both industry and agriculture. In the main, the period of exploiting natural resources has passed. Future progress must come from improved techniques and the conservation and careful development of our human and physical resources.

Agricultural policies need to point far into the future in providing food and clothing for all of our people and in supplying a large part of our shelter and products for industry. The export of farm products must be given an important place in our planning because of the needs of other countries and because we can make the greatest progress through international trade in goods and services which is to the mutual advantage of our own and other countries.

The public and agricultural producers must understand each other. While no industry more vitally concerns all people, agriculture differs from other industries in a number of ways that call for well-developed sound long-time policies. Some of the characteristics peculiar to agriculture, which give a basis for a long-time agricultural policy are quoted as follows from the United States Senate Report, Number 885, entitled "Long-Range Agricultural Policy and Programs:"

The production required to fill the primary needs of every urban and rural family for food and clothing originates principally on the Nation's farms.

As a consequence, the entire population benefits directly from technical progress that assures an abundant supply of farm products at a reduced cost of production.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

Abundant production of food and fiber, however, is dependent largely upon maintenance of the high productivity of the soil which is readily exhaustible.

Conservation, restoration, and development of the soil for future production, therefore, contribute directly to the welfare of all the people.

Even under the best conditions, however, agricultural production cannot be controlled completely, or even within narrow bounds. It varies widely from year to year because of variable weather, pests, and diseases.

Moreover, farm production cannot be started and stopped at will to meet changing conditions of demand, for farm-production processes are continuous and controlled mainly by the seasonal growth of crops and the natural life cycle of animals.

Since many farm products are perishable in character and are produced seasonally, they must be sold when ready for market, regardless of the demand and price situation at that particular time.

The problems growing out of these characteristics are intensified by the fact that the large number of small independent farmers are at a distinct disadvantage in dealing with the relatively small number of large, well-organized commercial establishments, in both the sale of products and the purchase of supplies.

The many independent farm operators are unable as individuals to conduct the research and experimentation necessary to maintain technical progress comparable to that attained by large industrial corporations.

Similarly, because of the scattered location of farms, most rural people are unable to provide, without assistance, many of the services that are readily available to most city dwellers.

On the other hand, the high birth rate among rural people makes possible the large farm-to-city migration of manpower which is necessary to continue the growth of urban centers.

In addition to understanding these characteristics of agriculture, there is need for seeing clearly the relationship between agriculture, labor and industry. Our very level of living is dependent upon a good balance between all segments of our economy. The experience immediately after the First World War, and especially in the period from 1930 to 1935, is evidence that the nation cannot long prosper when any important segment of our economy is in distress. A sound agricultural policy, therefore, will benefit our entire economy, and some of the essentials of such a policy have equal application to the other groups in the nation.

The following statement of some of the essentials of an agricultural policy is quoted from the same Senate Report referred to above:

A major objective of a long-range agricultural policy is to achieve an abundant production of food, fiber, and forest products adapted to the wants and physical well-being of all domestic consumers and to develop a strong export trade.

The interdependence of agriculture, labor, and industry requires that all production programs be designed to maintain efficiency, comparable incomes, and a high level of employment so that each economic group may be stable purchasers of the services and goods produced by other groups, thereby helping to maintain acceptable levels of living.

A well-balanced national economy requires that agriculture, as well as any other segment of our economy, receives a fair share of the national income; it requires also that means be maintained to prevent a disastrously low income for any particular group of producers of needed farm products.

Maintenance of an abundant production demands the conservation, restoration, and development of our soil, water, and forest resources.

The full development of our rural human resources requires improved facilities for education, nutrition, health, and recreation in order that all of our people may share in the opportunity to be useful citizens whether employed in agriculture or in industry.

The owner-operated family farm, long an accepted ideal of American farm policy, needs to be continued and strengthened as the basic type of unit of our farm economy.

A labor supply adequate for abundant agricultural production requires improved labor placement facilities, accident prevention, and social-security services adapted to and available for rural use.

Agricultural progress is dependent upon increasing production per worker through continued advancement in agricultural technology and science based upon expanded research, experimentation, education, and demonstration.

Federal, State, and local agricultural programs should encourage and develop full farmer participation in planning and administering production operations, marketing programs, and service activities.

Federal credit facilities for agriculture should be kept adjusted currently to the sound credit requirements of farmers and farm institutions.

The right of farmers to organize marketing, purchasing, and service co-operatives under existing cooperative law needs to be safeguarded.

The services of National and State agricultural agencies need to be kept adjusted to the legitimate and changing requirements of agriculture.

Each of the above statements merits careful study to determine in what measure present legislation and programs make possible the accomplishment of these objectives. Of still greater need is the personal responsibility of every citizen to contribute his part toward the better understanding between all economic groups and in helping to maintain a prosperous well-balanced economy that will contribute to the well-being of all our citizens. Whatever contributes to the more economical production of an adequate supply of farm products contributes to the welfare of all consumers — for consumers are the chief beneficiaries of a sound agriculture.

H. C. M. CASE

THE IMPORTANCE AND LOCATION OF DIFFERENT LINES OF FOOD MANUFACTURE IN ILLINOIS

About 16.5 percent of all the value added in manufacturing plants in Illinois in 1939 was in food processing. (The corresponding figure for the United States was 13.5 percent.) The value added by manufacture is the factory value of the products minus the cost of purchased materials, supplies, containers, fuel, electrical energy, and contract work consumed.

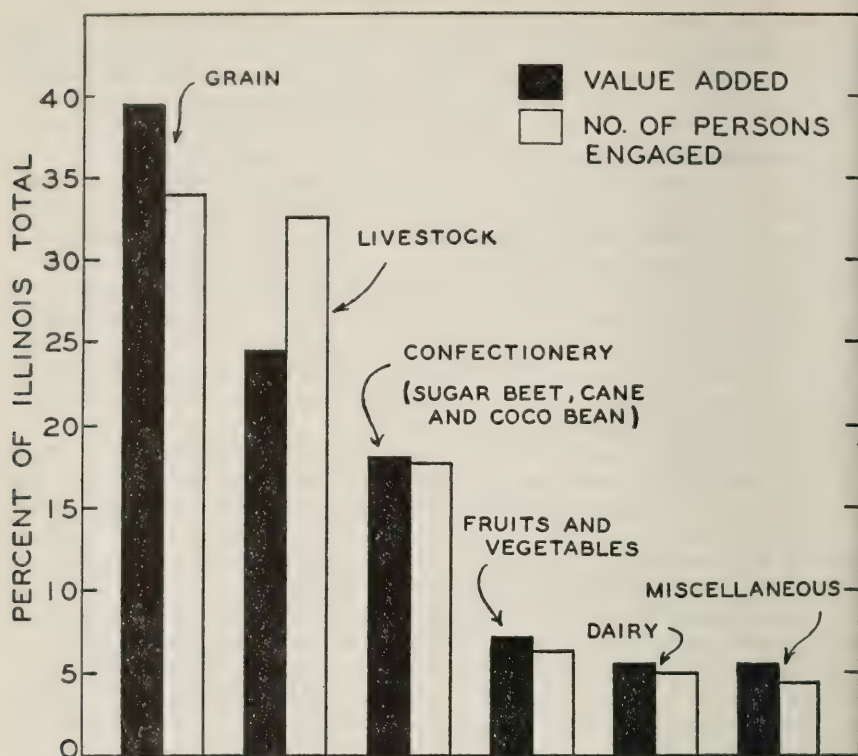


FIG. 1. — VALUE ADDED AND EMPLOYMENT IN ILLINOIS FOOD PROCESSING PLANTS, BY COMMODITY GROUPS, 1939

It is therefore a fairly good measure of the economic importance of a given manufacturing industry.

Relative importance of different food industries in Illinois. Among Illinois food plants, those processing grain or grain-products added the most value in 1939. Next in order of importance were the livestock group, confectionery group, fruit and vegetable group, dairy group, and miscellaneous group (Figure 1).¹ If bottled milk and cream were included among the manufactured dairy products, the importance of the dairy group would probably exceed that of the fruit and vegetable group, but not the confectionery group.

¹ For a more refined analysis of this problem, an adjustment should be made for the amounts of fruit and dairy products used in the grain group (in bakery goods) and in the confectionery group. Also adjustments should be made for the use of sugar in the grain, dairy, and fruit and vegetable groups; and for the use of grain products in the confectionery group (mostly corn sirup and sugar). Many of these adjustments would cancel each other out and the relative importance of the groups as shown in Figure 1 probably would not be altered.

TABLE 1. — RELATIVE IMPORTANCE OF DIFFERENT ILLINOIS FOOD PROCESSING PLANTS AS MEASURED BY VALUE ADDED BY MANUFACTURE AND EMPLOYMENT, 1939

Plant specializing in	Percent of total for all Illinois food processing plants	
	Value added by manufacture	Number of persons employed
Grain Group.....	39.6	34.2
Corn refining products.....	7.8 ^a	4.2
Flour.....	3.0	2.1
Breakfast cereals.....	1.6 ^a	.6
Macaroni, spaghetti, vermacelli, noodles.....	1.0	1.0
Blended and prepared flour.....	.1 ^a	.1
Bread, cake, rolls, etc.....	13.2	17.0
Biscuits, crackers, pretzels.....	4.4	4.0
Malt liquor.....	5.8	3.8
Distilled liquor.....	1.4	.9
Malt.....	.8	.3
Rectified and blended liquor.....	.4	.3
Meat Group.....	24.5	32.5
Meat-packing.....	22.3	29.0
Sausages and other prepared meats (not made in meat-packing establishments).....	1.6	2.2
Sausage casings, not made in meat-packing establishments.....	.3	.6
Dressed poultry.....	.3	.6
Confectionery and Related Products Group.....	18.0	17.7
Candy and other confectionery products.....	10.4	13.4
Chocolate and cocoa products.....	.2 ^a	.1
Flavoring extracts and sirups.....	3.8	1.0
Soft drinks.....	3.6	3.1
Fruit and Vegetable Group.....	7.1	6.2
Canned vegetables and canned soups.....	6.1	4.6
Pickled fruits and vegetables, and vegetable sauces and seasonings.....	.6	.9
Preserves, jams, jellies, fruit butters.....	.4	.6
Dairy Group.....	5.5	5.1
Ice cream.....	3.0	2.2
Butter.....	.9	1.2
Condensed, evaporated and dried milk products.....	.8	.7
Processed cheese and other dairy specialties.....	.4 ^a	.6
Cheese.....	.4	.4
Miscellaneous Group.....	5.4	4.2
Baking powder, yeast and other leavening compounds.....	1.4	1.2
Oleomargarine, not made in meat-packing establishments.....	1.0	.6
Salad dressings.....	.2 ^a	.2
Vinegar and cider.....	.1	.1
Other food products.....	2.6	2.1
Total of all groups.....	100.0	100.0

^a Estimated by the author from employment data. The totals do not add up to one hundred due to rounding of figures.

Source: Census of Manufactures.

The employment in each of the food processing groups is also shown in Figure 1. This is a measure of economic importance from the labor point of view. Although there is a rough correspondence between the value added and the number of persons employed in a given industry,

there is a marked divergence in certain industries, suggesting the relative importance of the labor factor in these industries. Data for the 33 food industries that make up the six industrial groups shown in Figure 1 are given in Table 1.

The ten leading food industries in Illinois were, in order of importance, meat-packing, bread, candy, corn refining, canned vegetables, malt liquor, biscuits and crackers, flavorings, soft drinks, and ice cream. They accounted for four-fifths of the value added by food plants in Illinois; while the remaining 23 industries contributed only one-fifth. The top industry, meat-packing, accounted for over one-fifth of the total, and the top four industries accounted for over one-half of the total.

Location of food processing industries in Illinois. Most of the food processing industries in Illinois are located in the Chicago area. About 60 percent of the plants and 75 percent of the wage earners engaged by them are in Cook, Dupage, Kane, Lake and Will counties. Chicago alone has 50 percent of the plants and 68 percent of the wage earners.

There is wide variation in the extent to which individual food processing industries are concentrated in Chicago. In 18 industries, over two-thirds of the wage earners were employed in Chicago plants, but in 10 other industries over two-thirds of the wage earners were employed "downstate."¹ In 6 industries the wage-earner employment was fairly well divided between Chicago and "downstate" plants (Table 2).

Many factors that determine the location of a plant cannot be evaluated easily. However, in the present case several significant location factors are suggested by the classification of industries shown in Table 2.

1. With several exceptions, the "downstate" industries process farm commodities whereas the Chicago industries process semi-manufactured food products. This distinction is important in two ways.

(a) A plant utilizing several different materials tends to locate with respect to each of them, whereas a plant utilizing only one material tends to locate with respect to it alone. Most of the "downstate" industries are largely based on a single commodity such as corn, wheat, or milk, while most of the Chicago industries are based largely on several semi-manufactured materials, such as cane sugar, beet sugar, corn starch and sirup, processed fruits, flour, vegetable oil products, processed eggs, butter,

¹"Downstate" refers to all of Illinois exclusive of Chicago. This definition is made necessary by the data available. However, sufficient other information is available to show that substantially the same classification of industries would result from an analysis based on a broader definition of Chicago (e.g. the five counties). The "corn refining" industry would move into the middle classification, and the "bread, cake, rolls, etc." and "macaroni, spaghetti, vermicelli, and noodle" industries would move into the right-hand classification.

TABLE 2. — PERCENTAGE OF THE WAGE EARNERS IN ILLINOIS FOOD-PROCESSING PLANTS THAT WERE EMPLOYED IN CHICAGO, 1939

Percent in Chicago			
Under 34%		34-66%	Over 66%
	(%)		(%)
Corn-refining products.....	0	Canned vegetables including	
Distilled liquor.....	0	canned soups.....	43
Dressed poultry.....	3	Ice cream.....	47
Cheese.....	4 ^a	Malt liquor.....	49
Processed cheese and other		Soft drinks.....	53
dairy specialties.....	8	Bread, cake, rolls, etc.....	58
Condensed, evaporated, and		Macaroni, spaghetti, ver-	
dried milk products.....	10	macelli, noodles.....	59
Butter.....	12		
Flour.....	22	Oleomargarine not elsewhere	
Rectified liquor.....	26 ^a	made.....	75 ^a
Vinegar and cider.....	29 ^a	Prepared flour.....	75 ^a
		Baking powder and yeast.....	76
		Breakfast cereals.....	80 ^a
		Malt.....	80 ^a
		Biscuits and crackers.....	81
		Meat-packing.....	82
		Pickled vegetables.....	84
		Miscellaneous foods.....	86
		Preserves, jams, etc.....	87 ^a
		Candy.....	88
		Sausages and other prepared	
		meats, n.e.m.....	94
		Flavorings.....	94 ^a
		Sausage casings, n.e.m.....	100
		Smoked fish.....	100
		Salad dressings.....	100
		Chocolate and cocoa.....	100
		Cooking fats and oils.....	100

^a Census of Manufactures. • Estimated.

concentrated milk, chocolate, nuts, meat, lard, etc. The latter materials are produced in various parts of the country, and they tend to be more economically converged at Chicago than "downstate," due to superior transportation and business facilities. With the recent development of economical truck transportation services the transport advantage of Chicago to food processing plants probably has declined somewhat.

(b) An industry will tend to locate close to the source of a material if the manufacturing process condenses it appreciably. This saves freight cost. Many of the "downstate" industries condense farm commodities into products that are less bulky. This is particularly true of dairy products manufactured from whole milk. Those industries processing farm commodities into products which are not condensed appreciably or/and which enjoy favorable freight rate arrangements (e.g., corn refining, grain-milling) are not as much affected by this consideration.

On the other hand, most of the Chicago industries combine semi-manufactured materials into new forms without reducing bulk appreciably. Often bulk is increased due to packaging. Chicago offers the advantage of an agglomeration of supporting industries, a large market, and excellent shipping facilities. A disadvantage would seem to be higher wage rates in Chicago than "downstate."

The breakfast cereal industry is unique in that it increases the bulkiness of grain through processing. This may be one of the factors in its concentration in Chicago. Another is that grain forms normally only one-third of the cost of processing.

2. There is another explanation for the Chicago industries that process unmanufactured commodities: Chicago is in the center of major production areas. Thus, the truck garden areas around Chicago furnish vegetables to the canned vegetable, canned soups, and pickled vegetable industries. The smoked fish industry obtains fish from Lake Michigan. The meat-packing industry draws livestock from the great livestock producing areas in Illinois and nearby States. In the latter case, the technical requirements for an efficient processing industry seem to require a large volume of slaughter, hence a relatively wide supply area.

3. Finally, there are several industries whose products are so bulky or perishable that they are manufactured near the point of consumption. Thus, bottled soft drinks, bakery goods (other than biscuits, crackers and pretzels), and ice cream manufacture tend to be concentrated in Chicago roughly in accordance with the population — about one-half of the Illinois total.

A. B. PAUL

RECENT CHANGES IN ILLINOIS FARM LAW

The sixty-fifth General Assembly of the State of Illinois, which adjourned on June 30, 1947, approved at least twenty laws of particular significance to Illinois farmers. Following is a summary of these laws. Further information about them may be obtained in most instances from the State Department of Agriculture, Springfield, or from the University of Illinois College of Agriculture, Urbana. In some cases local agencies will have information about certain ones. A reference to the Illinois Revised Statutes is given for each law discussed.

Bang's disease. One amendment changed from 20 to 30 months the age at which animals vaccinated for Bang's disease must show a negative reaction. Another provides that no female cattle or breeding bulls more than eight months of age shall be sold in Illinois except for slaughter, unless such cattle have been either tested and found negative within 60 days prior to the sale, or are under 30 months of age and were calfhood vaccinated, or are in an abortion-free accredited herd at the time of sale. The State Department of Agriculture may, however, permit reactors to be sold or transferred into a completely vaccinated herd, or into an infected herd. The Department may permit sales for feeding purposes without compliance with these rules. Another amendment provides that any county may adopt the county area plan authorized by the animal disease act. (Chapter 8, Sections 136a, 138, 139, 146, 148a, 187a)

Commercial feeds. A section was added to the law regulating the sale and analysis of concentrated feeding stuffs, making it a misdemeanor to sell or offer for sale in Illinois any such concentrated commercial

feeding stuffs containing more than three percent by weight of weed seeds. The law further provides that any weed seeds contained in such feeding stuffs shall be processed or treated so as to render them incapable of germination. Weed seeds are defined as "the seeds of all plants generally recognized as weeds within this state, and shall include primary and secondary noxious weed seeds."

Primary noxious weeds are Canada thistle, perennial sow thistle, field bindweed, leafy spurge, Russian knapweed, and hoary cress.

Secondary noxious weeds are curled dock, wild garlic, dodders, bull nettle, buckhorn, quack grass, wild mustard, Johnson grass, ox-eye daisy, and wild carrot. (Chapter 56½, Section 61a)

Commercial fertilizers. Each manufacturer, importer, agent or seller of any commercial fertilizer in Illinois must pay an annual registration fee of \$25 for each analysis of commercial fertilizer offered for sale or sold for consumption within the state, and a license fee of 10 cents a ton on each ton sold. This amendment replaces a previous provision requiring the purchase of tags or labels from the State Department of Agriculture. (Chapter 5, Sections 48, 49, 52)

Community sales. An addition was made which provides that no female cattle or breeding bulls more than eight months of age shall be sold in this state, except for slaughter unless:

(a) They have been Bang's tested and found negative within 30 days* prior to the date of sale.

(b) They are under 30 months of age, were calfhood vaccinated and can be positively indentified.

(c) They are in an abortion-free accredited herd at the time of sale.

The State Department of Agriculture may permit reactors to be sold into a completely vaccinated herd or into a herd that is already infected.

The department may also permit the sale of such female cattle and of bulls over eight months of age for feeding purposes only, without complying with these provisions, under conditions that will safeguard other cattle from infection. (Chapter 121½, Section 215)

Congressional apportionment. An act was approved apportioning the state into 26 congressional districts. Thirteen of these are in the city of Chicago, Cook County and Lake County. The other 13 are made up of the remaining counties in the state. In a test case before the Supreme Court of Illinois this act was upheld. Prior to this legislation, Illinois had 25 districts, 15 downstate and 10 in the city of Chicago, Cook County and Lake County. (Chapter 46, Sections 156a-c)

Drainage. The provision in the drainage act of May 29, 1879, relative to the assessment of benefits by the commissioners and the class-

* The 60-day provision in a later amendment probably applies.

ification of land into forty-acre tracts for the determination of benefits, was amended by this language ". . . but where the recognized official surveys show such subdivisions to be fractional and lots or parcels contained therein to be irregular in shape or form, or where the land is identified and described in accordance with legally recognized special surveys, such lots or parcels of land may be classified in tracts as nearly forty acres as may be, without entailing unnecessary expense therefor."

(Chapter 42, Section 18)

Eminent domain. To expedite the establishment and improvement of highways, statutory law on the taking of private property for a public purpose was amended to permit the immediate acquisition of such land for highway purposes. A declaration of taking, signed by the Governor or his agent, must be filed with the court conducting the proceedings, and the estimated compensation for the property must be deposited with the court. The state can then take possession without waiting for final adjudication, and cannot be divested of title to the land unless it is subsequently proved that the taking was not for a public use. In cases involving undue hardship to the persons in possession, the court may postpone the right of entry for six months following the vesting of title in the state.

(Chapter 47, Sections 2a-2c)

Fires. That portion of the criminal code dealing with the arson or burning of fields, crops, woods, or grasslands was amended to read "If any person shall willfully set on fire or cause to be set on fire any lands, fields, crops, woods or grasslands, not his own; or shall knowingly permit any fire to pass from his own lands to the injury or destruction of the property of any other person, he shall be fined not exceeding \$100.00 or be imprisoned in the county jail, not exceeding six months, or both." A maximum fine of \$100.00 may be imposed "if any person shall negligently or carelessly cause a fire by means of a lighted match, cigar, cigarette or other burning article, which damages property not his own; or shall start a fire on land or property, not his own, or upon any public highway in the State of Illinois, and negligently or carelessly leave said fire unextinguished, whereby any damage shall be done. . . ."

(Chapter 38, Section 53)

Hospitals. Provision was made for an advisory hospital council to be appointed by the Governor, to advise and consult with the Department of Public Health in carrying out provisions of the Federal Hospital Survey and Construction Act. This council is also to advise and consult with the department in the administration of the law providing for the licensing of hospitals. The Survey and Construction Act referred to is a grant-in-aid law which makes federal assistance available for a complete survey of hospital facilities in the state, and under which approved hos-

pitals may eventually qualify for construction grants from the federal government. (Chapter 127, Sections 6, 50)

Laboratories for diagnosing animal disease. The State Department of Agriculture was authorized to establish as many as five additional serological and diagnostic laboratories to serve the poultry and livestock industry of the state. An appropriation of \$100,000 was made to the department to carry out this provision. (Chapter 8, Sections 105-11)

Livestock. A law was approved requiring that anyone appointed as superintendent of livestock industry, be a graduate veterinarian, licensed in Illinois, with five years of practical experience in the profession. (Chapter 127, Section 7)

Noxious weeds. Provision was made for the establishment of a county weed control department and a county weed control commissioner. When such a plan is adopted by the voters in a county, the present commissioners of noxious weeds shall no longer be appointed. The county board may establish such a department by resolution, upon receipt of petitions from at least two-thirds of the townships or road districts in the county, signed by 25 legal voters or by five percent of the legal voters at the last general county election, whichever is fewer. The powers and duties of the weed control commissioner are set out in detail.

By another amendment to the weed law the State Department of Agriculture is given authority to investigate areas where leafy spurge or hoary cress are reported to be present or growing. If these weeds are present, the department shall cooperate with the owner in eradicating them and may agree to pay a fair portion of the cost of treatment, including even a reasonable rental for the land involved. If the owner refuses to cooperate, the department may institute eminent domain proceedings and take possession of the land until eradication is completed. (Chapter 18, Sections 6b, 10, 11)

Planning. The General Assembly established at least one commission that may have a bearing on agriculture, the Illinois Area Re-development Commission. The Commission consists of 18 members, five from the Senate, five from the House, three appointed by the Governor, one trustee of the University of Illinois, the public aid executive of the Illinois Public Aid Commission and the directors of three state departments — Agriculture, Conservation and Public Works and Buildings. The function of the committee is to make a thorough study and investigation of the industrial, agricultural, recreational and other economic resources in areas of the state that appear not to be fully developed or that have suffered deterioration.

Roads. Two laws of importance were passed concerning the township or road districts' authority with respect to roads. One law author-

izes the commissioner of highways in any town or road district to make agreements with other commissioners, or with cities, villages, incorporated towns or county boards, for the lease or exchange of idle machinery, equipment or tools.

The other law, more comprehensive and far-reaching, provides that any two or more townships in any county under township organization may be consolidated for road purposes. Proceedings are initiated by petitions to the county judge, signed by at least 50 or five percent of the legal voters of each township, whichever is fewer. After due notice an election is called by the county judge; and if a majority of the votes cast in each township are for consolidation, the road functions are consolidated. An election is then called to select a commissioner of highways and a clerk for the new area. With the exception of bonded indebtedness, all obligations and contracts of the respective townships are assumed by the new "township district." (Chapter 121, Sections 56, 47a-d)

School reorganization. One outstanding addition was made to the School Code, an amendment permitting the establishment of community unit districts upon petition by 100 or more voters residing in a contiguous and compact territory. The population of the area must be at least 2,000 and its equalized assessed valuation at least six million dollars. The district may be established to maintain grades one through twelve if a majority vote is secured at an election called by the county superintendent. (Chapter 122, Sections 8-9 to 8-14)

School surveys. There were several amendments to the School Survey law:

1. Counties were classified as either Class I counties, meaning those which took advantage of the School Survey Act when it was originally approved on June 20, 1945; and Class II counties, meaning those which failed to take advantage of the act at that time, but for which provision is now made. Class II counties, at a meeting of school board members called by the county superintendent and held not later than December 1, 1947, could consider the question of establishing a school survey committee. The amendment then sets up a procedural schedule for Class II counties similar to that for Class I counties.

2. The time for filing a tentative report with recommendations in the office of the county superintendent was extended from prior to June 1, 1947, to prior to December 1, 1947.

3. The time for filing a final report with the required supporting documents and maps was extended from January 1, 1948, to June 1, 1948. Because of two conflicting amendments, there is some uncertainty about these dates.

4. The term of members of the State Advisory Commission and of the

commission itself was extended to January 1, 1952, to take care of Class II counties.

5. Additional appropriations were made.

6. A section was added which required that prior to filing a petition for a change in school district boundaries, the petition be presented to and considered by the county survey committee at a meeting called for this purpose. This requirement holds, of course, only if a survey committee has been appointed in the county involved, and in no case can a committee take any legal action on the petition.

(Chapter 122, Sections 713-729)

Seeds. An amendment was made to the seed act prohibiting the sale of agricultural seed or of mixtures of agricultural seed containing any primary noxious weed seeds. This amendment does not apply to vegetable seeds. Primary noxious weeds are: Canada thistle, perennial sow thistle, field bindweed, leafy spurge, Russian knapweed, and hoary cress.

(Chapter 5, Section 36a, par. (d))

Soil conservation districts. Three principal additions were made to this law. One amendment makes it possible to change the name of a district; another permits the nomination and election of directors at an annual meeting, provided a petition requesting such authority is approved by the State Board; and a third provides that all districts shall elect five directors on or before March 1, 1948, three of whom shall serve two years and two of whom shall serve one year. Elections shall then be held each year, on or before March 1, to elect either two or three directors — two in the odd years, three in the even years.

(Chapter 5, Sections 120.1, 124, 125.1)

Testing milk and cream. The Pure Food Act was amended by repealing the section relating to buyers of milk and cream on a butterfat basis and substituting new provisions. This new law sets forth in detail the manner in which milk receiving or manufacturing plants and other places basing their payments on the Babcock test or any volumetric method for determining the fat content of milk and cream shall function.

(Chapter 56½, Section 22)

Tuberculosis in cattle. Two sections of the domestic animal contagious disease act were amended to authorize counties adopting the county area plan to employ a veterinarian and assistants. The veterinarian may be employed for a period not exceeding four years, and the county may receive from the state as much as 50 percent of the salary of the veterinarian and his assistants, up to \$225 a month. Another amendment permits any county to adopt the county area plan.

(Chapter 8, Sections 87, 88, 168, 187a)

H. W. HANNAH

ILLINOIS' ROLE IN U. S. FOOD MANUFACTURE

The food processing industries are of great economic importance to farms and households. Over 60 percent of the U. S. farm sales of commodities entering domestic food uses in 1935-39 were subjected to factory processing. (If bottled milk is included among the manufactured foods, the proportion was over 70 percent).¹ Consumers, on the other hand, spent roughly 65 to 75 percent of their food dollars for processed foods. We may, therefore, inquire into the economic role of Illinois in the U. S. food manufacturing picture.

Illinois is a "surplus" producer of processed food products. In 1939, it had only six percent of the U. S. population but it produced 10.1 percent of all the manufactured foods. If only those products made in Illinois are considered, Illinois made 11.6 percent of the U. S. total.² Among individual products, Illinois' importance in the U. S. picture varied greatly. Illinois lead other states in the production of certain confectionery, meat and grain products but it produced little or no canned or dried fruit products, cane and beet sugars, or processed sea foods.

In 1939, Illinois produced (1) over one-half of the U. S. output of refined corn products, canned sausage, chocolate covered candy bars, chocolate pan work, and marshmallows; (2) between one-quarter and one-half of the pickled and cured beef, pickled and dry-cured pork, dry-salted pork, canned meats, dry sausage, canned kidney beans, special purpose flour mixes, baking powder and yeast, cordials and liqueurs, leavening compounds, Thousand Island, French and other special salad dressings, oleomargarine, fancy package chocolates, bulk chocolates, hard candy, gum work and jellies, non-chocolate pan work, fudge, crystallized cream work, and butter creams; and (3) between one-eighth and one-quarter of the fresh beef, fresh mutton and lamb, fresh pork, edible fresh meat organs, boiled hams, lard, frozen custards, canned baked beans, canned corn, crackers and biscuits, macaroni and spaghetti products, distilled liquors, vegetable cooking oils, salad dressing, caramels and chewing candy, coconut candies, peanut candies, salted cashew nuts, salted pecans, pickles, prepared mustard, horseradish, and bottled and bulk olives.

On the other hand, Illinois produced less than one-eighth of the veal, fresh sausage, dressed poultry, smoked fish, butter, cheese, condensed and

¹ The U. S. Census of Manufactures, on which the data in this article is largely based, does not include bottled milk and cream.

² The population numbers are only an approximate indication of the percentage of manufactured food products consumed in Illinois. The Illinois per capita consumption of manufactured foods probably was higher than the national average in view of higher average incomes and more urbanization. In 1939, per capita incomes were 24 percent higher than the U. S. average; urbanization was 32 percent higher.

TABLE 1. — PERCENTAGE OF U. S. OUTPUT PRODUCED IN ILLINOIS, SPECIFIED COMMODITIES, 1939

Commodity group	Percent produced in Illinois
Meats.....	16.7
Confectionery and soft drinks ^a	15.0
Vegetable fat products.....	12.7
Grain products ^b	9.2
Processed vegetables ^c	9.2
Dairy products.....	5.4

^a Includes chocolate, cocoa and flavoring sirups and extracts.

^b Includes alcoholic beverages.

^c Includes a small amount of preserved fruits.

evaporated milk, dried milk products, ice-cream mix, ice-cream products, canned vegetables (with the exception of products noted above), bread, cakes, pies, pretzels, phosphated and self-rising flours, breakfast cereals, malt liquors, rectified liquors, shortenings, mayonnaise, chocolate and cocoa, soft drinks, tomato ketchup, meat sauces, kraut, flavoring extracts and sirups, and preserves, jams and jellies.

The position of Illinois in the production of 137 manufactured food products (covering virtually all Illinois food manufactures) are summarized by commodity groups in Table 1.

A. B. PAUL

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, seasonally adjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, seasonally adjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 1. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ¹	Weekly wages, all manufacturing industries, unadjusted ²	Industrial production ³
	Wholesale prices		Illinois farm prices ⁴	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	45	56	96	60	57	60	73	51	58
1933.....	66	51	57	94	62	68	75	70	54	69
1934.....	75	65	76	100	73	73	74	80	70	75
1935.....	80	79	102	101	90	86	85	86	80	87
1936.....	81	81	105	100	104	109	110	101	93	103
1937.....	86	86	118	104	108	116	112	107	111	113
1938.....	79	69	90	98	99	107	109	90	85	89
1939.....	77	65	84	97	99	107	110	106	100	109
1940.....	78	68	89	98	107	114	116	115	114	125
1941.....	87	82	112	103	142	146	140	138	168	162
1942.....	99	105	141	117	197	200	169	171	245	199
1943.....	103	123	165	127	251	243	191	209	330	239
1944.....	104	124	165	132	265	249	189	231	346	236
1945.....	106	128	171	136	283	246	180	236	288	203
1946.....	121	148	204	151	302	295	195	238	261	170
1947.....	158	181	265	181	...	...	...	...	...	187
1946 Nov....	137	169	241	166	367	539	325	247	298	183
Dec.....	140	168	236	166	363	374	225	250	306	182
1947 Jan....	142	165	229	168	366	363	216	251	307	189
Feb.....	145	170	235	173	352	346	200	253	311	189
Mar.....	150	182	259	177	342	372	210	254	314	190
Apr.....	148	177	252	180	348	363	202	253	311	187
May.....	147	176	245	178	343	356	200	256	312	185
June.....	148	177	255	180	350	328	182	...	319	184
July.....	151	181	267	180	347	374	208	...	314	176
Aug.....	154	182	276	184	337	275	149	...	334	182
Sept.....	157	186	297	186	360	254	137	...	337	186
Oct.....	159	190	292	187	...	575	307	...	341	190
Nov.....	160	188	282	188	...	...	...	...	345	192

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			February 1947	Current months, 1947-48		
	1935-39	1946	1947		December	January	February
Corn, bu.....	\$.66	\$1.39	\$1.90	\$1.22	\$2.45	\$2.57	\$1.90
Oats, bu.....	.31	.77	.97	.79	1.20	1.32	1.03
Wheat, bu.....	.86	1.83	2.45	2.16	2.90	2.94	2.21
Barley, bu.....	.62	1.29	1.59	1.45	2.00	2.00	1.83
Soybeans, bu.....	.90	2.30	3.28	3.06	3.81	4.24	3.03
Hogs, cwt.....	8.52	17.53	25.04	24.60	25.20	27.40	22.40
Beef cattle, cwt.....	7.88	16.41	20.62	18.00	20.80	23.00	21.20
Lamb, cwt.....	8.36	16.38	21.31	20.30	22.00	23.40	20.90
Milk cows, head.....	58.00	147.00	173.33	165.00	180.00	185.00	180.00
Veal calves, cwt.....	8.66	16.78	23.30	23.60	25.00	28.00	24.50
Sheep, cwt.....	3.58	6.99	7.39	7.10	7.90	8.20	8.90
Butterfat, lb.....	.27	.63	.69	.66	.82	.82	.80
Milk, cwt.....	1.68	3.80	4.00	4.05	4.60	4.80	4.70
Eggs, doz.....	.19	.34	.41	.34	.55	.40	.40
Chickens, lb.....	.15	.27	.27	.27	.25	.25	.25
Wool, lb.....	.25	.43	.40	.43	.41	.42	.41
Apples, bu.....	1.08	3.37	2.72	3.00	2.55	2.50	2.50
Hay, ton.....	9.39	15.55	16.87	16.50	20.50	21.00	21.00
Potatoes, bu.....	.91	1.70	1.91	1.60	2.10	2.10	2.20

¹² For sources of data in tables see previous page.

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SOME CURRENT INTERNATIONAL FOOD PROBLEMS AS THEY MAY AFFECT MID-WEST AGRICULTURE

In Illinois the following production trends in agricultural output are occurring: (1) an increase in acreages in small grains; presumably this is to get more clover crops in an effort to restore some of the nitrogen lost as the result of the heavy cropping of recent years; (2) a maintained acreage in corn; (3) a reduced acreage in soybeans — presumably to get the acreage to make possible the increase in small grains; (4) reduced outputs of animal foodstuffs illustrated by a lower level of milk production, smaller purchases of baby chicks, fewer sows to farrow this spring, fewer cattle on feed and a small reduction in other cattle. The reduction in livestock and livestock production largely reflects the influence of the shorter corn crop in 1947 and resulting unfavorable feeding ratios. The net effects of all these changes will be some reduction in total output and less intensive operation.

The balance of this discussion will concern itself with international factors. Producing for the most part basic foodstuffs, mid-west farmers must recognize the important part that world forces have on their markets.

In the world food situation five basic factors are of importance:

1. The low level of exports of rice in the Orient
2. The low level of world exports of fats and oil seeds
3. The decline in production of animal fats in various countries
4. The low level of purchasing power in Germany and Japan
5. The shortage of dollars in the sterling area

Articles in *Illinois Farm Economics* are based largely upon findings of the
Agricultural Experiment Station.

In the food situation two basic facts should always be kept in mind: (1) consumption cannot exceed production; (2) consumption is affected by purchasing power. The "capacity to do without" is very important in estimating markets for all but the most basic foodstuffs.

A brief review of the commodity situations not listed above is in order:

Wheat. The capacity to produce wheat in the four major export countries — the United States, Canada, Argentina, and Australia — was unimpaired by the war. Production in Western Europe can come back quickly. Events of recent weeks indicate that Eastern Europe will sell any available surplus in exchange for manufactured goods or foods which they lack.

Feed grains. Precisely the same forces operate as for wheat.

Sugar. The heavy Cuban production seems to be more than adequate to supply effective demand in spite of reduced output in the Orient.

Meats. The prices at which the surplus overseas countries sell beef and mutton indicate an easy supply position in relation to effective demand. Production of pork products will depend on supplies of feed grains which can be liberal after 1948 crops. The high price of meat in the United States, reflecting high domestic purchasing power, is no index of the world meat situation.

Dairy products. These are produced from grass, feed grains, and oil seeds. Elements of real scarcity arise out of shortages of oil seeds and will be mainly reflected in low levels of production of animal fats.

Fruits and vegetables. The situation seems to be one of incipient surplus instead of shortage in view of world purchasing power.

The Key Problems

1. **Low level of the exports of rice.** For nearly half of the world's population, rice is the basic cereal. The exports of five major exporters — Burma, Siam (Thailand), Indo-China, Formosa (Taiwan) and Korea — have been and still are low. All were involved in the Asiatic war. War still prevails in Indo-China. Formosa and Korea have ceased to be Japanese-occupied countries, and their agriculture is no longer geared to supplying Japan. This is essentially an Oriental problem. Its major impact on the West will be the likelihood of larger imports of wheat and coarse grains into the rice-consuming area. This will draw on Western supplies. A sizable part of the current Australian crop of wheat goes to India. Obviously the only remedy for this situation is increased output of rice for export in the former sources of supply.

2. The low level of exports of fats and oil seeds. Estimated world production of fats and oils in 1947 was only eight percent below 1935-39, but exports were down about 44 percent. This cuts two ways. Fats are concentrated foods of high nutritional value; the associated oil cakes are highly valuable for feed. This reduction reflects in part the failure of Indonesia (the Netherlands East Indies) to recover in production; the loss to world trade, except possibly to Russia, of Manchurian soybeans; increased consumption of local production in India reflecting apparent increase in domestic purchasing power; some reductions in shipments from Africa; and reduced output of butter in the export countries. Of these the developments in Manchuria and India are likely to be most permanent.

Efforts to counteract shortages are: restoration of production in Indonesia consequent on the return of the Dutch to the area, expansion of peanut production in East Africa, expansion of oil seed production in Europe, and increases in production of animal fats which must wait on more ample feed supplies. This shortage of export supplies of fats and oil seeds may be one of the most persistent food problems arising from wartime dislocations and changes. The total quantity by which exports of fats and oils fell below prewar in 1947 was equivalent to about 560 million bushels of soybeans, four times our annual crushings.

A contribution which the United States could make to this problem is to put all our oil seed processing industries on the solvent extraction basis, which recovers more oil than does the expeller or other pressure systems of extraction. The soybean industry is rapidly converting to the solvent system. Technical problems in doing so appear to be greater in the cottonseed industry.

3. Reduced production of animal fats. Combined 1947 production of animal fats was down a little over 10 percent from 1935-39. Production of tallow was up; that of butter and lard, down. Increased tallow reflects high cattle slaughter. Reduced butter reflects increased consumption of whole milk and short feed grain and oil seed supplies. Less lard reflects lower supplies of feed grains. Total production will likely be lower in 1948 than in 1947 because of the continued effect of shorter 1947 supplies. After 1948, production, particularly of lard, should increase. Increases in fluid milk are more likely to be used in a higher consumption level of whole milk and whole milk products.

4. Lack of effective purchasing power in Germany and Japan. The level of production of other industrial countries and hence domestic purchasing power has risen to the point where more food could be purchased if it were available. But in Germany, Austria, and Japan, the level of domestic business activity is such that this does not appear to be the case.

Food consumption in Germany is far below the level to which Western people have been accustomed. While consumption is lower than prewar in Great Britain and other Western European countries, nevertheless it is far higher than in Germany. A recovery of industrial employment in Germany would be a powerful factor in increasing the effective demand for world food supplies. In the absence of increased world shipments, the effect would be to reduce supplies available for other importing countries. A similar line of reasoning applies to Japan. If increased exports of rice are not forthcoming, the effect of increased demand for food will be to increase demands for other cereal grains. To make increased domestic purchasing power in either country effective in world markets requires exports to earn the needed foreign exchange. The market area for such exports by Japan is fairly clear — other Oriental countries; the market area for Germany is not so clear.

5. Shortage of dollars in the sterling area. The reference to the sterling area is partially symbolic. Other countries lack dollars but the English problem is of central importance for traditionally she has been the banker for many other countries. Great Britain can procure much food without dollars in Africa, Australia, New Zealand, the Orient, Europe and apparently some things from the American continent, viz., Argentina beef. But for England and the countries which depend on her for foreign exchange to buy in certain areas requires dollars. In general, this applies to purchases in both North and South America. The European Recovery Plan will temporarily ease this problem because it will provide dollars. A long-run solution can come only from developing sources of food supply in non-dollar areas and from building up dollar earnings by exports, direct or indirect and tourist and service earnings.

The ERP will aid in three of these problems: (1) the shortage of dollars; (2) the restoration of purchasing power in Germany; (3) production of animal fats in Europe by making more feed available. It will not aid in increasing exports of rice in the Orient, increasing materially the exports of fats and oil seeds, or contribute to economic recovery in Japan.

If shortages of rice and fats and oil seeds continue and if purchasing power of Germany and Japan recover, it will tend to support prices for grain and other basic foodstuffs in world markets. The shortage of dollars in the sterling area is one of the great threats to prices for agricultural products in the countries which expect payment in dollars. This threat will be minimized so long as we are making heavy grants or loans. But it will continue to exist until European countries can develop export surpluses which can be sold for dollars in sufficient volume to finance their requirements of imports which have to be paid for in dollars.

L. J. NORTON

A COMPARISON OF DIFFERENT HAYMAKING METHODS

Methods of making and storing hay are undergoing rapid changes. Farmers are making these changes because they want to make better hay, do it in less time and with less strenuous labor. Where the acreage of hay is an appreciable part of cropland on corn-belt farms, making hay is a peak labor job. It usually comes at a time when there is other farm work that should be done; but haymaking demands first attention as a job that must often be finished in a relatively short, fixed time if good-quality hay is obtained.

In an attempt to evaluate some of the newer methods and equipment used in hay making, recent field studies made by six state experiment stations¹ in the Middle West were reviewed. Enough information is available on methods used to come to certain conclusions.

General Conclusions

A. More difference was found in the number of man hours required to make hay between farms where the same type of haying equipment was used than was found between farms using different types of equipment. That is, each farm has its peculiar haymaking problem, and the best way to reduce the time and laborious work in haying on a particular farm may be "to study and improve the methods of using the present equipment."

B. It would appear that it is not the saving in man hours or in expense in putting up hay that accounts for the rapid change occurring in kinds of haying equipment used. Getting away from strenuous work and getting the job done as quickly as possible seem to have most weight.

C. Usually one of the methods of making hay is best adapted to conditions that exist on the individual farm.

(1) With *field chopper*, wagons and blower, a ton of hay is moved from the windrow into storage with the least amount of time of any haying method studied, or with slightly less than one and one-half hours of man labor. The elimination of strenuous work in haymaking is also one of the advantages of the method. Farmers using this method indicate there is less waste in feeding chopped hay than in feeding loose, long hay or baled hay. The cost of chopped hay is higher than for long, loose hay because of the additional processing involved.

The field chopper is adapted to handling large acreages of hay. The capital invested in the chopper, blower, and special wagons is much higher than in the hay loader and buck rake and is usually higher than in balers.

¹ The haymaking studies reviewed were made in Iowa, Michigan, Minnesota, Nebraska, Ohio, and Wisconsin.

Field choppers were found on farms where it was possible either at home or by additional custom work to chop about 160 tons of hay a year.

(2) The *buck rake* moves a ton of hay from the windrow to storage with slightly more than one and one-half hours of man labor but is limited in the quantity of hay it can move in a day. The crew with the buck rake is small, and the load which the buck rake can handle is small. It was found that the buck rake moved hay with little more labor per ton than the field chopper because the buck rake is seldom, if ever, used except when the hay field is near the barn.

The buck rake is adapted to the small or medium-sized farm. It works best when fields and lanes are smooth and when no sharp turns need be made. An advantage of this method of haying is that little capital is tied up in special haying equipment.

(3) The *field baler* of the hand-tying type, or what is often termed the three-man baler, is giving way to the one-man baler. The reason is that the one-man baler with little or no more fixed capital in haying equipment and with a smaller crew can bale and store more hay in 10 hours than the three-man baler. A ton of hay is moved in about two hours by the one-man-baler method, and in about two and one-half hours by the three-man-baler method. Baling has a decided advantage when hay is to be sold. The pick-up baler is adapted to large farms, to custom work, limited hay storage space, and long hauls. Farmers are about equally divided on the ease of storing and of feeding baled hay compared to storing and feeding long, loose hay.

(4) The *hay loader* makes hay slower than any other method generally used. It requires 2.7 hours of man labor to gather, move and mow away a ton of hay by this method. However, more farmers use this method than any other because they are thoroughly acquainted with it, their hay loader is already on the farm, and in many instances it fits the haying needs of the farm. Haymaking with the hay loader requires hard work both in the field and in the mow. The hay loader is adapted to the small or medium-sized farm. It fits the haying needs of farms that produce up to about 40 tons of hay yearly.

Variations Among Farmers

That there was greater variation among farms using the same type of equipment than between groups of farms using different types of equipment was brought out by several of the haymaking studies. For instance, Bookhout brought this out in the report of his haying study in Michigan.¹ In connection with Table 1, which is from his report, he concludes that

¹ Journal of Farm Economics, Vol. XXIX, No. 3, August 1947.

TABLE 1. — LABOR REQUIRED TO MOVE A TON OF HAY FROM WINDROW TO MOW IN CENTRAL MICHIGAN BY TYPE OF EQUIPMENT USED, 1946^a

	Loose hay		Chopped hay	Baled hay	
	Loader	Buck rake	Field chopper	1-man baler	3-man baler
	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)
Low farm.....	1.5	.6	.6	1.2	2.0
High farm.....	2.5	3.4	1.9	2.5	2.8
Average.....	1.9	1.4	1.4	2.0	2.2

^a For a true comparison the hauling time was adjusted to the average hauling distance of approximately 100 rods on all farms.

the average figures in the table of hours of labor required to move a ton of hay from windrow to mow give an indication of the relationship between groups of farms using different types of equipment. However, the range in hours from low farm to high farm that occurred within the groups using the same type of equipment may be of greater significance than the comparison of average hours between groups of farms using different equipment (Table 1).

Comparison of Methods in Use of Labor

In order to obtain figures for tons handled per hour and man hours per ton for hay put up by different methods, the figures given in the reports of the haymaking studies in each of the six states were first arranged from high to low. Then, in this case, the average of the two middle figures was computed. These are the median values shown in Table 2. The approximate 1948 cost of haying equipment was obtained

TABLE 2. — SIZE OF CREW, AMOUNT OF LABOR, AND CAPITAL IN HAYING EQUIPMENT USED IN HANDLING DRY HAY BY DIFFERENT METHODS

Equipment used	Labor ^a			Approximate 1948 cost of haying equipment
	No. of men in crew	Tons handled per hour	Man hours per ton	
Field chopper, wagons, stationary blower.....	3.7	2.5	1.4	\$1500 - \$3200
Buck rake, slings and carrier.....	3.0	1.8	1.6	150 - 250
One-man baler, wagons or trailers, slings or elevator....	4.5	2.5	1.8	1600 - 2800
Three-man baler, wagons or trailers, slings or elevator....	6.0	2.4	2.4	1700 - 2350
Hay loader, wagon racks, hay fork and carrier.....	4.0	1.5	2.7	700 - 900

^a Figures for tons handled per hour and man hours per ton are median values.

from agricultural implement dealers in Illinois during early March 1948. The wide spread in cost of haying equipment for each method of haying arises from the fact that implements put out by different manufacturers to do identical haying jobs differ in price. Implements fitted with auxiliary

power usually cost considerably more than those driven by power take-off.

The measurement of hours of labor required by different haying methods, shown in Table 2, starts after the hay is in the windrow and ends when it is stored in the barn. Mowing and raking are not included since those jobs are the same for all the methods discussed. In only one of the six studies was the time moving hay from the field adjusted to the same length of haul for all methods.

What Method to Use

Field chopper. From a purely labor-saving standpoint hay was put into the mow with the least labor per ton when the field chopper was used and the chopped hay blown into the mow. Field chopping probably required the least strenuous physical labor. Very little of the hay was handled by hand when wagons with automatic unloaders and blowers, which distribute the hay in the barn, were used. In order to make the saving in labor, however, it was necessary for farmers who used the field chopper to have more capital invested in haying equipment than was required by any of the other haying methods. The cost per ton of hay chopped and stored will be high unless the machine has a full annual use. Just what is the full annual use of a field chopper was not brought out by any of the field studies.

Buck rake. Moving hay from field to mow with the tractor-mounted or auto-mounted buck rake was found to require little more man labor a ton than when the field chopper was used. The amount of capital required in hay equipment by this method, however, was the lowest of any method of haying used. The objections most often raised to the buck rake as a method of moving hay were that the load which the buck rake handled was small and as a result the method does not lend itself to moving large quantities of hay in a day's time, and it only warrants being used when the haul of hay to the barn is short.

Field baler. The field baler makes a compact bunch of hay, but it does not always relieve the haying crew of back-breaking work. Lifting bales by hand on some farms was reduced to a minimum by using field-loading elevators or low-wheeled trailers pulled with the baler. The one-man self-tying baler method of handling hay with crews of four or five men will move as much hay in a day as a crew of three or four men with a field chopper. The three-man hand-tying field baler will probably be the first of the haymaking machines to go out of general use. The reasons given by farmers for the discontinuance of its use are: (1) self-tying baler does as good a job with less labor; (2) risk of getting custom machines at the right time too great; (3) too expensive; (4) involves too much hard work; and (5) baling a dirty, dusty job.

Hay loader. Haymaking with the hay loader was found to be the slowest method of putting up hay. Nearly double the number of hours of man labor was required to haul and store a ton of hay when the hay loader and wagon racks were used as was required to handle a ton of hay with the field chopper method. However, in the field studies of haymaking methods more farmers were found using this method than any other. The principal reasons they gave for using the hay loader were: (1) they already had the loader and to go to any other method would require the expenditure of capital; (2) barns on most farms are built to store loose, coarse hay; and (3) little capital was required. Farmers indicated that, if they changed from the hay loader to the self-tying baler or field chopper, it would be because they disliked the heavy and hard work of putting up hay with the loader and because it takes too much time to make hay that way when there is other pressing work on the farm.

Differences in Investment in Equipment¹

The investment in machinery and power is much higher with field choppers and balers than with buck rakes and loaders (Table 2). The cost of power-driven machines will vary by make and by whether the machine is driven with power take-off or with an auxiliary engine. A hay chopper and blower in March 1948 cost from \$1,300 to \$3,000. A full crew for operating a field chopper requires the use of two tractors to operate the chopper in the field and the blower at the barn. Two trucks or one or two tractors are used to haul the chopped hay to the barn. Racks and wagons vary. The large closed trailers, with power take-off for unloading, cost about \$500 each. Most field choppers have corn-cutting attachments and where silage is made may be used on fairly large acreages.

The common three-man pick-up baler costs from \$900 to \$1,200. The self-tying or one-man baler costs from \$1,700 to \$2,200. No special equipment is required for hauling the bales: where the storage space is readily accessible and the tonnage handled small, the bales can be unloaded by hand; the grapple fork or slings can be used where large amounts of baled hay are stored. Some farmers build special elevators, which work all right.

Many buck rakes now in use were homemade and are mounted on old automobiles. A commercially made buck rake that can be used with rubber-tired tractors costs from \$90 to \$120.

Farmers using hay loaders usually have an investment of \$240 to \$330 in their loader and hay racks.

¹ Taken in part from Economic Information for Wisconsin Farmers, Vol. 17, No. 1.

More Facts Needed on Methods of Storing and Quality of Hays Made by Different Methods

Most barns found on farms today were built so that they could hold long, coarse hay. The openings to allow the entrance of hay as well as the size and arrangement of the hay mows are such as to handle bulky, long, coarse hay. As a result farmers say they have experienced some difficulty in storing baled and chopped hay so that there is no loss by spoilage. It is difficult to say whether spoilage occurred as the result of not properly storing the hay or whether it was not correctly cured before being stored. New silo-type hay storage structures have recently come into use. Little information is available concerning how well chopped hay keeps in them. According to the farmers reporting, further study needs to be made of such problems as the best way to store baled hay, equipment for getting baled hay into storage, the methods of storing chopped hay, and structures best adapted to the storage of baled hay and chopped hay.

The farmers also needed more information regarding the keeping quality and relative feed value of hay put up by the different methods. As present users of the newer haying equipment gain more experience in their use, they no doubt will be able to improve the keeping quality of hay. Relative feed value of hay made by the different methods also will become more clearly defined as more farmers gain experience with the newer methods.

R. H. WILCOX

RELATION OF SIZE OF CORN-BELT FARMS TO EFFICIENCY OF PRODUCTION, SOIL CONSERVATION, FARM POPULATION, AMOUNTS OF PRODUCTS PRODUCED, AND VALUE OF PRODUCTS SOLD¹

In this study of size of farms, 170 Farm Bureau Farm Management Service farm records for the ten years from 1936 to 1945 were used. Each farm was maintained at approximately the same size and under the same management throughout the ten years. All farms were in 16 counties in north-central Illinois, which is about the center of the corn belt.²

¹ Paper read at the National Work Conference on a Protestant Program for the Family Farm held at the Garrett Biblical Institute, Evanston, Illinois, March 22-24, 1948. The conference was sponsored by the Town and Country Committee of the Home Missions Council of North America, the Federal Council of Churches of Christ in America, and the International Council of Religious Education Cooperating with the Farm Foundation.

² The Farm Bureau Farm Management Service is a cooperative farm management service conducted by the Department of Agricultural Economics, College of Agriculture, University of Illinois, and county farm bureaus. A fieldman well trained in farm management spends all of his time with about 200 farm families. About 80 percent of the cost is paid by the cooperating farmers and 20 percent by the University of Illinois. About 2,600 farms are now enrolled in this service.

The farms were divided into eight size-groups as shown in Tables 1 and 2. The number of farms in each size-group is shown in Table 1.

In order to visualize the effect of size of corn-belt farms on population, total production, and contribution to the food supply of the nation, the data for each size-sample of farms were "blown up" to the equivalent of a 20-township county, which is about the average size of the counties in north-central Illinois. Since only about 95 percent of all land in the area is in farms, each county-equivalent area was considered to be 95 percent of a 20-township area. The eight county-equivalent areas, beginning with the small-farm area, are made up of 3,597; 2,688; 2,191; 1,835; 1,540; 1,382; 1,111 and 822 farms respectively (Table 2).

While it is recognized that record-keeping farms are as a group more productive and more profitably operated than the typical farms of the area, it is believed that the *relative* productivity and profitableness of the different sized farms are similar to the typical farms of the same size. The data presented here are for the entire farm business, representing both the tenants' and landlords' shares in cases of rented farms. More than one-half of the land is rented.

Efficiency of production on different sized farms. As measured by the net earnings per \$100 investment in total farm capital, farms in the four groups including the 140 to 299 acre farms appear to be slightly more efficient than the farms under 140 or over 300 acres¹ (Table 1). The advantage of the medium-sized farms is not great enough to appear significant, especially in view of the small numbers of farms in some of the groups. It is significant to the author, however, because it checks with similar size-of-farm analyses made repeatedly during the past 30 years.

Small farms are not able to use labor and machinery as efficiently as larger farms, as shown by the higher cost of machinery and labor per crop acre and the smaller number of man work units worked per man.

Large farms where much of the work is done with hired labor tend to have lower crop yields and less efficient livestock. This bears out the old proverbs: "He who by the plow would thrive must either hold himself, or drive"; and, "The eye of the master fattens the flock."

The total number of men required to operate the farms in the eight county-equivalent areas declines rapidly from 5,314 for the small-farm county to 2,491 for the large-farm county (Table 2). The total annual farm cash balance per man required to operate the farms varied from only \$2,100 in case of the small-farm county-equivalent area to \$3,950 in

¹ The value of the land, which is a major part of the total farm investment, was determined by capitalizing the landlord's net rent in a typical county in the area during the ten years of 1936 to 1945 at 4 percent and by adjusting the value of the land on each farm to the natural productive capacity of its soil. See Table 1.

TABLE 1. — RELATION OF SIZE OF FARM TO EFFICIENCY OF PRODUCTION AND SOIL CONSERVATION BASED ON 10-YEAR RECORDS (1936-1945) OF NORTH-CENTRAL ILLINOIS FARMS THAT WERE MAINTAINED AT ABOUT THE SAME SIZE FOR THE TEN YEARS UNDER THE SAME MANAGEMENT

Item	Size of farm—total acres in farm									
	Under 140	140-179	180-219	220-259	260-299	300-339	340-459	460 or more		
Number of records in sample.....	11	31	26	33	16	27	15	11		
Average size of farms.....	122	163	200	239	284	317	394	533		
Average acre-value of bare land ^a	\$ 226	\$ 245	\$ 234	\$ 239	\$ 224	\$ 238	\$ 242	\$ 205		
Percent of farm tillable.....	86	93	88	90	88	91	89	88		
Average operator's labor and management earnings.....	\$2 410	\$3 779	\$3 896	\$4 239	\$5 118	\$5 290	\$6 252	\$8 223		
Net earnings per \$100 investment in total farm capital.....	7.48	8.73	8.26	7.83	8.42	7.80	7.54	7.84		
Yield of corn—bushels per acre.....	64.7	66.9	65.4	62.8	63.8	64.4	64.4	64.4		
Pigs weaned per litter.....	6.5	6.6	6.5	6.4	6.2	6.4	6.2	6.3		
Milk per cow milked.....	7 542	7 102	6 942	7 623	6 991	6 983	5 836	7 668		
Eggs per hen.....	115	161	126	130	137	133	132	133		
Livestock efficiency index ^b	109	105	104	101	101	98	99	98		
Labor cost per crop acre.....	\$14.54	\$11.02	\$10.06	\$ 9.44	\$ 9.11	\$ 8.08	\$ 7.82	\$ 6.96		
Machinery cost per crop acre.....	10.94	8.06	7.32	7.03	6.57	6.57	6.37	5.78		
Man work units per man.....	194	208	203	219	207	212	215	221		
<i>Soil conservation items:</i>										
Percent of tillable land in:										
Grain and silage.....	63.1	70.1	69.6	70.3	69.6	71.8	73.2	72.9		
Biennial and perennial legumes.....	27.7	22.0	20.8	21.6	22.9	18.9	18.8	17.1		
Sweet clover for green manure.....	2.3	2.5	1.6	2.6	1.9	2.8	3.0	4.2		
All soil-building legumes.....	30.0	24.5	22.4	24.2	24.8	21.7	21.8	21.3		
Value of feed fed per acre.....	\$23.57	\$26.46	\$19.80	\$20.01	\$19.24	\$18.59	\$21.59	\$18.49		

^a The land on each farm was valued according to the production rating of the soil type. The base value was calculated by deducting five percent of the landlords' operating capital from their net earnings during the ten years and then capitalizing the remainder at four percent.

^b The livestock efficiency index for any farm is the percent that the total livestock returns are of the average returns from the same amounts of feed fed to the same kinds of livestock.

case of the large-farm area. *These facts indicate that there is great economy of man power obtained as farms increase in size.*

Land use and soil conserving practices. Considerably more tillable land was kept in soil-building legumes and less in grain on the farms in the small-farm area than in any other area. This accounts in part for the low earnings on these farms: farm account records show consistently that, as corn-belt farms are operated, the earnings from land in hay and pasture are less than from land in grain. More of the tillable land was in soil-building legumes and more manure per acre, based on feed fed per acre, was used on farms under three hundred acres in size than on the larger farms. The least legumes and the least manure per acre were used on the largest size-group of farms.

Distribution of earnings among farm families. The average annual farm and family earnings increased rapidly from \$3,880 per farm under 140 acres to \$13,860 per farm of 460 or more acres. (These earnings are divided between the tenants and landlords on rented farms.)¹

With reasonable thrift, a farm family with three children can live well in a modern home, provide college education for part of the children, and save for old age security with average yearly earnings of \$4,000 to \$5,000 during times like those that prevailed from 1936 to 1945. This figure of \$4,000 to \$5,000 is based in part on home account records kept on central and northern Illinois farms under supervision of Home Economics Extension workers. In order to do this the family cannot live extravagantly during times of high earnings and also save to pay expenses during low-earning periods. By the practice of extreme thrift, some families are doing well on \$1,000 per year less than the \$4,000 to \$5,000 per year suggested here.

The number of farms that provided annual farm and family earnings of \$5,000 or more per farm in the eight county-equivalent areas beginning with the area with the small farms were: 654; 1,821; 1,517; 1,612; 1,251; 1,382; 1,111; and 822 (Table 2). There were about a third more such farms in the 160-acre-farm area than in the 320-acre-farm area and more than twice the number found in the large-farm area.

The average annual hired man's earnings on the basis of 12 months' employment were about \$1,000 per man. This includes food furnished by the farm but not the use of a house by married men. The percentage of all labor that was hired varied from a low of 23 percent for the 140 to 179 acre farms to 58 percent for the large farms of 460 or more acres.

If a family-sized farm were defined as one on which "the work is done

¹ The "farm and family earnings" of a farm is the difference between the total cash receipts and net inventory increases and the total cash expenses and net inventory decreases plus the value of home-used products obtained from the farm.

TABLE 2. — SCALE OF FARM AND FAMILY AND HIRED MAN'S EARNINGS, AMOUNTS OF LABOR USED, PRODUCTION OF CROPS AND LIVESTOCK, AND AMOUNT OF BUSINESS ORIGINATING ON COUNTY-EQUIVALENT AREAS MADE UP OF FARMS OF THE SIZES INTO WHICH THE FARMS WERE GROUPED IN TABLE 1^a

Item	Size of farms in eight county-equivalent areas							
	84-139	140-179	180-219	220-259	260-299	300-339	340-459	460-705
Average size of farms	122	163	200	239	284	317	394	533
Number of farms per county-equivalent	3 597	2 688	2 191	1 835	1 540	1 382	1 111	822
Number of farms with farm and family earnings of:								
Less than \$4,000	1 962	347	168	56	0	0	0	0
\$4,000 to \$4,999	981	520	506	167	289	0	0	0
\$5,000 to \$9,999	654	1 734	1 433	1 500	866	1 024	593	330
\$10,000 to \$14,999	0	87	84	112	385	358	370	82
\$15,000 or more	0	0	0	0	0	0	148	410
\$5,000 or more	654	1 821	1 517	1 612	1 251	1 382	1 111	822
Average farm and family earnings	\$ 3 880	\$ 5 820	\$ 6 110	\$ 7 000	\$ 8 190	\$ 8 820	\$10 740	\$13 860
Years of labor used:								
Operator's labor	3 349	2 565	1 983	1 617	1 300	1 222	990	745
Family labor	610	766	438	579	517	476	324	304
Hired labor	1 355	1 017	1 356	1 385	1 404	1 413	1 559	1 442
Total labor	5 314	4 348	3 777	3 581	3 221	3 111	2 873	2 491
Percent of labor hired	26	23	36	39	44	45	54	58
Average hired man's yearly earnings	\$ 953	\$ 1 017	\$ 973	\$ 985	\$ 1 059	\$ 948	\$ 1 045	\$ 987
Amounts of crops produced:								
Grain—1,000 tons	335	403	370	366	355	382	380	370
Silage—1,000 tons	28	31	19	52	54	29	62	17
Hay—1,000 tons	128	74	72	76	71	70	70	58
Pasture—1,000 days	13 615	9 390	10 650	9 905	9 150	8 705	7 890	7 150
Other crops—1,000 acres	19	23	24	16	18	20	21	19
Amounts of livestock and products:								
Cattle—1,000 pounds	25 130	25 120	25 370	22 550	28 730	23 320	37 830	31 990
Hogs—1,000 pounds	68 250	90 270	53 670	58 000	52 110	56 090	43 920	49 210
Sheep—1,000 pounds	1 900	780	4 020	1 450	3 260	4 170	1 670	1 140
Milk—1,000,000 pounds	255	123	95	140	71	62	29	37
Eggs—1,000 dozens	3 370	6 030	2 800	2 710	2 310	1 930	1 620	1 080
Total cash receipts—\$1,000	\$25 150	\$29 030	\$25 190	\$22 620	\$24 580	\$23 220	\$30 090	\$23 570
Total cash expenses—\$1,000	13 970	16 020	14 360	12 210	14 230	13 010	20 300	13 730
Total cash balances	\$11 180	\$13 010	\$10 830	\$10 410	\$10 350	\$10 210	\$ 9 790	\$ 9 840
Cash balance per year of labor	2 100	2 990	2 870	2 910	3 210	3 250	3 410	3 950

^a Twenty townships of land, 95 percent of which was considered as farm land.

^b Twelve months of labor on farm work was considered as one year of labor.

^c Other crops include mostly canning crops, hemp, and clover and grass seed.

by the family with little or no hired labor," only the two groups of farms under 180 acres would be considered as family-sized farms. If, however, it were defined as one on which "no more than 50 percent of the labor is hired," all size groups except the two of 340 or more acres would be included.

Amount of products produced and sold per county-equivalent area.

The greatest production of crops, considering grain, silage, hay, pasture and some miscellaneous crops, was on the areas of farms under rather than over 260 acres in size. The greatest production of livestock and livestock products was on the two areas of farms under 180 acres in size.

Production of dairy products, hogs and poultry was heavy on the county-equivalent area made up of small farms under 140 acres. Hogs, poultry and dairy products were prominent on the 140 to 179 acre farms. The purchase and sale of large numbers of feeder cattle accounted for the unusually large cash purchases and sales on the 340 to 459 acre farms.

Much more of the farm products produced on the smaller farms was used by the people living on the farms than was so used on the larger farms. Even so, the total cash balance (the difference between all cash farm purchases and all cash farm sales) per county-equivalent area was larger in the two smaller-farm areas than on any of the six areas having farms over 180 acres in size. The cash balance on the 140 to 179 acre farms area was about 25 percent more than for the average of the six areas with farms over 180 acres in size.

In final analysis this means that the total amount of salable products which go to feed and clothe the people in towns and cities and foreign countries was greater on small to medium-sized farm areas than on large-farm areas in the heart of the corn belt. However, the smallest farms require up to twice the labor needed to produce about the same amounts of salable products on the largest farms.

M. L. MOSHER

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900, 4-48—8700
Permit No. 1247

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	74	51	58
1933.....	66	51	57	94	67	68	75	69	54	69
1934.....	75	65	76	100	79	73	74	80	70	75
1935.....	80	79	102	101	89	86	85	86	80	87
1936.....	81	81	105	100	105	109	110	101	93	103
1937.....	86	86	118	104	111	116	112	107	111	113
1938.....	79	69	90	98	96	107	109	100	85	89
1939.....	77	65	84	97	99	107	110	107	100	109
1940.....	78	68	89	98	105	114	116	115	114	125
1941.....	87	82	112	103	140	146	140	138	168	162
1942.....	99	105	141	117	193	200	169	175	245	199
1943.....	103	123	165	127	244	241	190	216	334	239
1944.....	104	124	165	132	255	240	182	240	346	236
1945.....	106	128	171	136	270	248	182	248	293	203
1946.....	121	148	204	151	308	302	200	254	266	170
1947.....	152	181	265	181	378	386	213	281	324	187
1947 Jan.....	142	165	229	168	323	360	219	270	307	189
Feb.....	145	170	235	173	256	308	178	271	311	189
Mar.....	150	182	259	177	291	334	189	271	314	190
Apr.....	148	177	252	180	288	354	197	270	311	187
May.....	147	176	245	178	299	357	201	272	312	185
June.....	148	177	255	180	329	321	178	276	320	184
July.....	151	181	267	180	400	465	258	277	314	176
Aug.....	154	182	276	184	377	331	180	278	323	182
Sept.....	157	186	297	186	459	253	136	302	337	186
Oct.....	159	190	292	187	566	569	304	290	342	190
Nov.....	160	188	282	188	466	538	286	292	345	192
Dec.....	163	197	296	191	438	446	234	297	357	191
1948 Jan.....	166	199	310	196	385	434	221	295	...	192

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			March 1947	Current months, 1948		
	1935-39	1946	1947		January	February	March
Corn, bu.....	\$.66	\$1.39	\$1.90	\$1.53	\$2.57	\$1.90	\$2.14
Oats, bu.....	.31	.77	.97	.89	1.32	1.03	1.21
Wheat, bu.....	.86	1.83	2.45	2.55	2.94	2.21	2.27
Barley, bu.....	.62	1.29	1.59	1.55	2.00	1.83	1.80
Soybeans, bu.....	.90	2.30	3.28	3.85	4.24	3.03	3.28
Hogs, cwt.....	8.52	17.53	25.04	26.90	27.40	22.40	22.20
Beef cattle, cwt.....	7.88	16.41	20.62	19.30	23.00	21.20	22.10
Lamb, cwt.....	8.36	16.38	21.31	21.70	23.40	20.90	20.60
Milk cows, head.....	58.00	147.00	173.33	170.00	185.00	180.00	180.00
Veal calves, cwt.....	8.66	16.78	23.30	23.00	28.00	24.50	24.70
Sheep, cwt.....	3.58	6.99	7.39	7.40	8.20	8.90	9.10
Butterfat, lb.....	.27	.63	.69	.71	.82	.80	.76
Milk, cwt.....	1.68	3.80	4.00	4.00	4.80	4.70	4.55
Eggs, doz.....	.19	.34	.41	.36	.40	.40	.39
Chickens, lb.....	.15	.27	.27	.28	.25	.25	.29
Wood, lb.....	.25	.43	.40	.43	.42	.41	.41
Apples, bu.....	1.08	3.37	2.72	3.00	2.50	2.50	2.25
Hay, ton.....	9.39	15.55	16.87	16.00	21.00	21.00	22.00
Potatoes, bu.....	.91	1.70	1.91	1.70	2.10	2.20	2.10

¹⁻¹¹ For sources of data in tables see previous page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS
College of Agriculture University of Illinois Department of Agricultural Economics
G. L. Jordan, Editor May and June 1948 Numbers 156 and 157

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LOW MARKET MILK PRICES INCREASE MILK CONSUMPTION

Studies of changes in per capita consumption of market milk and of evaporated milk show that:

1. People drink more milk when it is low priced than when it is expensive.
2. High market milk prices encourage people to use more canned milk. Canned milk consumption increased rapidly between 1921 and 1940 during a period when its manufacturing and distribution costs were cut in half.
3. Prices for canned milk at stores vary but little from region to region and tend to change together in different regions.

During World War II milk sales increased 26 percent. Estimated per capita consumption of milk and the milk equivalent of cream in the United States increased from 160 quarts in 1940 to 201 quarts in 1945, a net increase of 26 percent. This was the greatest average annual increase in milk consumption ever recorded. This remarkable increase in sales may be attributed primarily to:

1. *A sharp increase in consumers' income.* In 1944, per capita consumer income in the United States was 212 percent of that for 1935-39, an increase of 112 percent.¹ Consumer income in 1945 was nearly as high as that for 1944.
2. *Low prices to consumers.* In 1944, the home-delivered price of milk in 25 cities¹ averaged 14.9 cents per quart.² This was an increase of

¹ From Farm Income Situation, United States Department of Agriculture, June-July, 1947. Data used were per capita net incomes to persons not on farms.

² United States Department of Agriculture. Annual Yearbooks and Fluid Milk Reports.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

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only 24 percent from the 1935-39 average of 12 cents per quart during the same period when consumer income increased 112 percent. Retail milk prices were held down during the war by OPA price ceilings, by subsidies to farmers, and by wage-rate restrictions.

3. *Shortages of competing products.* With high consumer income and shortages of new homes, autos, refrigerators, and many other consumer goods, more money was left to buy milk.

Milk sales have decreased since 1945. Per capita sales of milk (and cream) in the United States in 1947 were 8.1 percent less than in 1945. This decrease in milk sales resulted from:

1. An increase from 14.9 cents to 19 cents per quart for milk delivered to consumers at their homes.

2. Removal of farmer subsidies and an increase of 44 percent in the price that dealers paid farmers.

3. Removal of wage-rate restrictions and OPA ceiling prices on supplies.

4. A greater abundance of competing products.

People drink more milk when it is low priced. What effect do changes in consumer price and consumer income have upon the per capita consumption of milk? Studies have shown that changes in the home-delivered price and changes in per capita income of non-farm people accounted for most of the changes in per capita consumption of milk and cream in the United States from 1930 to 1947. The coefficient of a multiple correlation from 1930 to 1947, in which x_1 was the per capita consumption of milk and the milk equivalent of cream,¹ x_2 the index of per capita income received by non-farm people, and x_3 the average home-delivered price of milk in 25 cities, was + .87. Since a perfect correlation is 1.00, this indicates the high degree of influence which changes in consumer income and in the price of milk to consumers had upon the per capita consumption of milk in this period.

Per capita sales of milk and cream in the United States decreased from 163 quarts in 1930 to 155 quarts in 1934, a net decrease of 5 percent. During this period consumer income fell nearly twice as fast as the 25-city average of home-delivered prices of milk. For every \$100 a consumer had in 1930 he had only \$55.10 in 1933, a net decrease of 44.9 percent. During this same period the average price of milk fell from 13.2 cents per quart to 10.1 cents, a net decrease of 23.5 percent. With less money, people bought less milk since milk prices were relatively high.

From 1933 to 1937, consumers' income increased faster than home-delivered milk prices and per capita sales of milk and cream increased 3 percent.

¹ In the correlation sales were lagged one year.

The outbreak of World War II in September 1939 resulted in an expansion in industrial production and consumer income without a corresponding increase in milk prices. This resulted in the rapid expansion of milk sales during the war years.

By 1947, consumption of milk (and cream) had declined to 185 quarts per person. This was still 15.6 percent above the 160-quart average for 1940, and reflected the fact that the 1947 home-delivered milk prices were only 58 percent above those of 1940 compared with an 84-percent increase in consumer income in that same period.

Low-priced store milk increases milk sales to medium- and low-income families. A survey of 4,508 retail food stores in New York City in June, 1938, showed that:¹

Store sales of Grade B milk per family were greatest in the low income areas of the city (Table 1). The obvious reason is that families with lower

TABLE 1. — RELATION OF FAMILY INCOME TO PRICE AND ESTIMATED SALES OF MILK PER FAMILY AT 4,508 STORES, NEW YORK CITY, JUNE, 1938^a

Income areas	Average store prices per quart for Grade B milk		Daily store sales per family
	Glass bottles	Paper containers	Grade B quarts
Low.....	8.2	9.3	.90
Medium.....	8.8	9.5	.59
High.....	9.4	9.7	.48
All areas.....	8.5	9.5	.71

^a Cornell University Farm Economics, February 1939, pp. 2720-2721.

incomes show a tendency to purchase milk at the store to save on price. . . .

In general, the stores serving families in low income areas sold fresh milk at lower prices than those in the medium and high income areas. . . .

It was found also when groups of stores in different areas were compared, that sales were greatest in areas where selling prices were lowest. . . .

The New York home-delivered price for milk in June, 1938, was 12.5 cents per quart. This was 4.0 cents above the average store price and 4.3 cents above the average store price in the low-income areas. In 1940 per capita sales of milk in New York were the highest of 41 cities in the United States.² At this time store sales constituted 56 percent of total milk sales of that city.³ *High sales of milk in New York City can be attributed, to a considerable degree, to the large volume of high-quality milk sold at low prices through stores largely to medium- and low-income consumers in that city.*

¹ Cornell University Farm Economics, February 1939, pp. 2720-2721.

² The Milk Industry (Bartlett) 1946, p. 104. ³ *Ibid.*, p. 172.

Use of quantity discounts increase milk sales of high-income families. A study of the effect of the use of quantity discounts in the Champaign-Urbana market for over 1,300 families from 1933 to 1938 showed that *the per capita consumption of the families¹ using discounts increased 18½ percent in the first six months after they began to use the discount.* Later per capita consumption of these families declined somewhat leaving an eight percent net increase at the end of 24 months.

Further study showed that the majority of the families using quantity discounts were in the high-income group. Of the 154 families which bought milk in gallon lots for 12 months or more, 119 were in the high-income areas of the market, 27 were in the medium-income areas and only 8 were in the low-income areas. This study disproves the opinion held by some people that price has no influence upon per capita consumption of people in the high-income brackets.

Sales to the 154 patrons increased from an average of .81 pint per capita daily for the six months before they started using discounts to .96 pint daily for the six months after they started to buy milk at lower prices. Milk sales of the high-income group increased from .82 pint to .97 pint daily; the medium-income group from .78 pint to .92 pint; and the low-income group from .80 pint to 1.00 pint daily per person during the two periods before and after using discounts.

In 1935, 5½ percent of total retail milk sales in the Champaign-Urbana market was sold in gallon lots. By 1938, gallon-lot sales had increased to 35 percent of total market sales. The two-cent discount for milk in gallon jugs was introduced in this market in 1935. Prior to this a one-cent discount had been used.

High market milk prices encourage canned milk consumption. In 1947, people in the United States consumed an average of 18.5 pounds of evaporated milk per person (Figure 1). This was double the 9 pounds per person consumed in 1923. Several factors including improved quality, advertising, and increased use as a baby food have contributed to this. *The major cause for increased consumption of evaporated milk, however, may be attributed to its cheapness as compared with market milk.*

Between 1921 and 1940 the gross margin for evaporated milk over the price paid the farmer was reduced from 8.8 cents per 14½-ounce can to 4.3 cents, a net decrease of 51 percent.² During this same period the gross margin for home-delivered milk was reduced from 6.5 cents per quart to 6.4 cents, a net decrease of 1.5 percent. Sharp reductions in costs for processing and distributing evaporated milk without corresponding cost reductions for processing and marketing market milk, have resulted in a

¹ Lee, G. A., Quantity Discounts as a Means of Increasing Milk Consumption, Illinois Farm Economics, August 1940, pp. 384-387.

² The Milk Industry (Bartlett) 1946, p. 23.

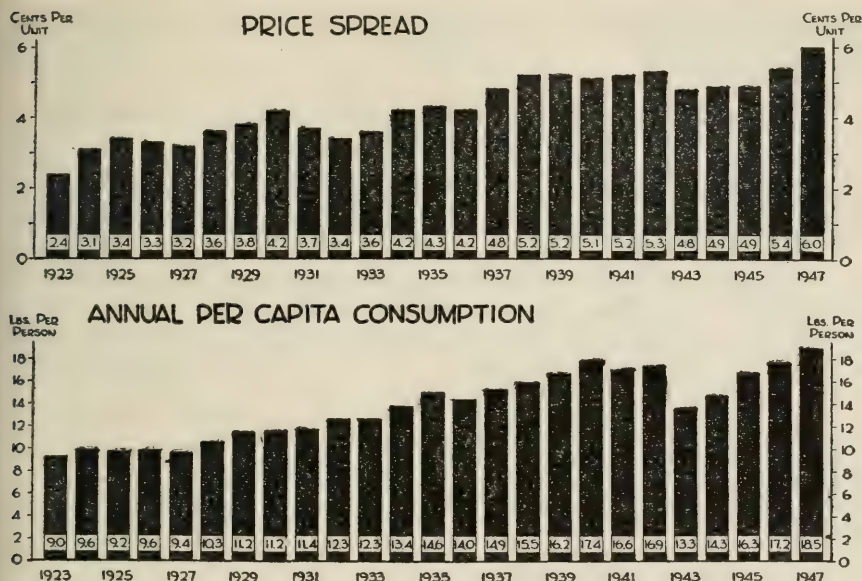


FIG. 1.—CHANGES IN THE PER CAPITA CONSUMPTION OF EVAPORATED MILK AND IN THE AMOUNT WHICH HOME-DELIVERED PRICES PER QUART OF MARKET MILK EXCEEDED THE PRICE PER 14½-OUNCE CAN OF EVAPORATED MILK, 1923 TO 1947

substantially increased spread between market milk prices and evaporated milk prices.

In 1923, a housewife paid only 2.4 cents more for a quart of home-delivered market milk than for a 14½-ounce can of evaporated milk bought at a store. By 1939, this price spread had increased to 5.2 cents, then dropped to 4.8 cents in 1943 (Figure 1).

With the removal of OPA price ceilings, subsidies paid to producers, and restriction on wage rates, market milk prices to consumers advanced much more rapidly than the prices of canned milk. By 1947, the price spread between market milk and evaporated milk had increased to 6 cents per unit. This widening of price spread between 1943 and 1947 was reflected in increased use of canned milk. In 1947, the average consumption of canned milk in the United States was 18.5 pounds per person, or 39 percent more than the 13.3 pounds consumed in 1943. Part of the lower civilian consumption in 1943 resulted from lend-lease and military shipments of evaporated milk.

The coefficient of correlation between the annual per capita consumption of canned milk and the amount that the 25-city average of home-delivered prices of market milk exceeded the retail price of evaporated milk from 1923 to 1947 was + .93. Since a perfect correlation is 1.00, this

indicates the high degree of relation which existed between these factors during this period.

Relation Between Family Income and Per Capita Consumption of Market Milk and Evaporated Milk

Increases in family income tend to increase the per capita consumption of market milk and to reduce the use of evaporated milk (Table 2). Thus,

TABLE 2. — RELATION OF FAMILY INCOME TO PER CAPITA CONSUMPTION OF MARKET MILK AND EVAPORATED MILK, 1941^a

Annual income per family	(Per person per year)	
	Quarts	Pounds
Under \$500.....	54	15
\$ 500-\$ 999.....	96	24
\$1,000-\$1,499.....	123	21
\$1,500-\$1,999.....	124	20
\$2,000-\$2,999.....	132	17
\$3,000-\$4,999.....	142	13
\$5,000 and over.....	165	11

^a USDA Miscellaneous Publication 581, 1945.

in 1941, families with incomes ranging from \$500 to \$999 per year used 96 quarts per person of market milk, or only about three-fifths of the 165 quarts used in families having an income of \$5,000 a year or more.

In contrast, the per capita consumption of evaporated milk was highest (24 pounds per person) for families in the \$500-\$999 income group and declined sharply for families in the higher income groups.

Comparison of retail prices of evaporated milk by regions. The history of retail prices of evaporated milk for 50 cities grouped by regions from 1919 to 1947 indicates two facts:

1. *Prices paid by consumers for canned milk at stores vary but little from region to region* (Figure 2). In 1947, the average price per 14½-ounce can of milk in the 50 cities was 13 cents. This compared with 13.4 cents in the Northwestern states, 13.3 cents in the South Atlantic, and 13.1 cents in the West North-Central states.

In three areas canned milk prices were less than the 50-city average in 1947. The average price for cities in the South-Central states was 12.5 cents, in the East North-Central states 12.6 cents, and in the Middle Atlantic states, 12.7 cents per can. The average price in the Southwestern states was 13.0 cents per can, the same as for the United States.

2. *Canned milk prices at stores tend to change together throughout the United States.* Canned milk prices are far more flexible than market milk prices and either lower or higher prices paid to farmers are quickly reflected in prices charged consumers.

4. A study of 4,508 retail food stores in New York City in 1938 indicated that low-priced store milk tends to increase per capita sales of milk, particularly of medium- and low-income families.

5. A study of milk purchases of over 1,300 families in Champaign-Urbana from 1933 to 1938 indicated that the use of quantity discounts for home-deliveries tended to increase the per capita sales of milk, particularly to high-income families.

6. A study of milk purchases of over 1,300 families in Champaign-Urbana from 1933 to 1938 indicated that the use of quantity discounts for home-deliveries tends to increase the per capita sales of milk, particularly for high-income families. While available to all families, only a few low-income families used quantity discounts.

7. A study by the United States Department of Agriculture in 1941 showed that per capita consumption of market milk tends to increase with increases in family income while people with higher incomes tend to use less evaporated milk.

8. Prices for canned milk at stores vary but little from region to region and tend to change together.

Conclusions

Based upon these facts, a program for maintaining and expanding per capita consumption of market milk in the United States should:

1. Keep wholesale prices for market milk (Class I) closely in line with prices of manufactured milk products or consumer income particularly during periods of declining prices. Failure to do this will result in decreases in per capita consumption and lower blend prices to market milk shippers.

2. Encourage the introduction of new methods and practices which will lower costs for processing and distribution of market milk.

3. Encourage consumers to maintain and expand their use of market milk by passing on quickly in lower store and home delivery prices any reductions made possible from lower prices to farmers or from lower distribution costs.

R. W. BARTLETT

MEASURING EFFICIENCY IN THE USE OF LABOR IN MARKET MILK PLANTS

The processing and distribution of market milk has been undergoing rapid changes during the past two decades with an increasing proportion of milk being sold through stores in paper containers. In Chicago, for example, in 1929, 80 percent of the milk was delivered to consumers at

their homes. By 1941, 64 percent of the total milk sold to consumers was sold through stores, while only 36 percent was home-delivered milk.

Store sales of milk in Baltimore increased from 14 percent of the total in 1929 to 46 percent in 1940; in Los Angeles from 18 percent in 1929 to 58 percent in 1940; in New York from 35 percent in 1929 to 56 percent in 1940; while store sales of milk in San Francisco increased from 20 percent of the total in 1929 to 70 percent in 1940.¹

The increasing use of the single-service paper container has contributed to the expansion of store sales. In 1943 the Bureau of Dairy Industry reported that approximately 5,086,000 paper containers were in daily use,² or about 12 percent of total sales of milk was in paper. In the writers' opinion this proportion has now increased to about 25 to 30 percent of total milk sales.

The California Bureau of Milk Control of the State Department of Agriculture has shown:

that in October, 1940, 46 percent of total store sales, or 262,250 quarts daily, was sold in glass containers compared to 54 percent or 306,750 quarts sold in fibre containers in some 20 markets in California. . . .

By October 1945 this relationship had changed to 15 percent in glass and 85 percent in fibre, the daily glass sales being 126,500 quarts and fibre sales 722,000 quarts. The overall sales at wholesale in these markets increased from 569,000 quarts daily in October 1940 to a total of 845,500 in 1945. Although the total daily store sales of milk in quarts increased 49 percent, glass sales decreased 52 percent while fibre sales increased 135 percent during this five-year period.³

Illinois markets have been experiencing an increase in store sales and in the use of paper containers somewhat like that in California markets. It is reported that over half the milk in Chicago is now being sold through stores in paper containers, while during recent months there has been a substantial increase of this type of milk distribution in many downstate Illinois markets.

Milk dealers all over the country are being forced to adjust their business operations to changes coming about through increased store sales of milk in paper containers. With this fact in mind, during the past two years studies have been initiated at the University of Illinois to measure the efficiency in the use of labor, space, power, in physical units, and in costs in money units, for the principal operations of market milk plants which are processing and bottling milk in paper containers.

This report deals with the efficiency in the use of labor, using minutes per 100 gallons of milk as the common unit of measurement. Other re-

¹ Bartlett, R. W. *The Milk Industry*, 1946, p. 172. ² *Ibid.*, p. 32.

³ Blackburn, R. W. *Streamlining Plant Operations and Store Distribution of Milk*. Dairy Marketing Conference, University of Illinois, January 28, 1947. Mimeo. 2443, p. 24.

ports to follow will include square feet of floor space per 100 gallons, horsepower or B.t.u.'s per 100 gallons, and unit costs for each of the different processes in cents per quart.

Labor Requirements in Market Milk Plants

The principal processes in a market-milk plant have been subdivided as follows: receiving, pasteurizing, homogenizing, bottling, bottle-case storage and cleaning, and bottle-case filling and storage. In addition to these processes, plant labor is used for garage and delivery service. The use of labor in the market-milk operations of Plant X is reported in this study.

Labor distribution. Labor for processing and bottling an average of 50,000 quarts of milk in paper containers at Plant X averaged 184 hours or 11,040 minutes daily (Table 1). Of the total time, 679 minutes

TABLE 1. — DISTRIBUTION OF DAILY LABOR TO PROCESSES

	To table	Man hours	Man minutes		
			Total	Per 100 gal.	Percent of total
To final processes: direct*					
Receiving	14	1.00	60	.48	.54
Pasteurizing	15	17.00	1 020	8.16	9.24
Homogenizing	16	1.00	60	.48	.54
Bottling	17	26.00	1 560	12.48	14.13
Bottle-case storage and cleaning	18	16.00	960	7.68	8.69
Bottle-case filling and storage	19	22.00	1 320	10.56	11.98
Subtotal		83.00	4 980	39.84	45.12
To intermediate processes:					
Over-all supervision	3	24.00	1 440	11.52	13.04
Other cleaning and odd jobs	4	8.00	480	3.84	4.35
Repairs and maintenance	5	24.00	1 440	11.52	13.04
Machine cleaning	10	21.00	1 260	10.08	11.41
Floor cleaning	11	19.50	1 170	9.36	10.60
Route loading	12	4.50	270	2.16	2.44
Subtotal		101.00	6 060	48.48	54.88
Total		184.00	11 040	88.32	100.00

* Time allocated directly to final processes. The methods used for allocating labor to different processes will be shown later in an experiment station bulletin.

were used for receiving, 2,425 minutes for pasteurizing, 311 minutes for homogenizing, 3,608 minutes for bottling, 1,382 minutes for bottle-case storage and cleaning, 2,048 minutes for bottle-case filling and storage, and 587 minutes daily for garage and delivery service (Table 2).

Reduced to a unit basis, 88.32 minutes were required per 100 gallons of milk for doing these operations. This compared with the following time for performing these same operations for four plants included in the Washington, D. C., study made in 1943.¹

¹ Bartlett, R. W. The Milk Industry, 1946, p. 232.

TABLE 2. — DAILY LABOR REQUIREMENTS FOR FINAL PROCESSES

	From table	Man hours	Man minutes		
			Total	Per 100 gal.	Percent of total
Receiving.....	14	11.40	684	5.47	6.19
Pasteurizing.....	15	40.53	2 432	19.46	22.03
Homogenizing.....	16	5.20	312	2.50	2.83
Bottling.....	17	59.02	3 541	28.32	32.07
Bottle-case storage and cleaning.....	18	23.04	1 382	11.06	12.52
Bottle-case filling and storage.....	19	35.03	2 102	16.81	19.04
Garage and delivery service.....	20	9.78	587	4.70	5.32
Total.....		184.00	11 040	88.32	100.00

Plant A.....191.4
Plant B.....177.0
Plant C..... 87.6
Plant D.....193.2

Plant X had practically the same labor requirements as Plant C, but less than half the time required for doing about the same operations done by Plants A, B, and D. Both plants X and C bottled milk exclusively in paper containers, while Plants B and D were exclusively glass-bottle plants. Plant A bottled milk in both glass and paper containers.

R. W. BARTLETT and F. T. GOTHARD

A SUGGESTED METHOD FOR REORGANIZING ILLINOIS PRODUCER DAIRY ASSOCIATIONS AND FOR PRICING MILK IN ILLINOIS MARKETS OUTSIDE OF CHICAGO AND ST. LOUIS

As part of a program for maintaining and expanding markets for milk and its products, the Department of Agricultural Economics of the University of Illinois has been asked to counsel producer dairy associations on pricing and organization problems in several milk and cream areas. These areas included Bloomington, Champaign-Urbana, Chicago, Henry, Mt. Carroll, the Quad-Cities, Rockford, and St. Louis. Meetings and conferences have shown that certain economic factors have made it impossible for milk producer associations in the smaller Illinois markets to continue to be effective agents in bargaining for the sale of milk to local milk dealers. Likewise, new conditions are forcing creameries to handle milk as well as cream.

Studies have shown that the principal factors causing these changes have been:

1. *The widespread growth of improved roads.* During the past 30 years Illinois has made rapid progress in building all-weather roads capable of holding up heavy trucks. In 1946, Illinois had 14,484 miles of

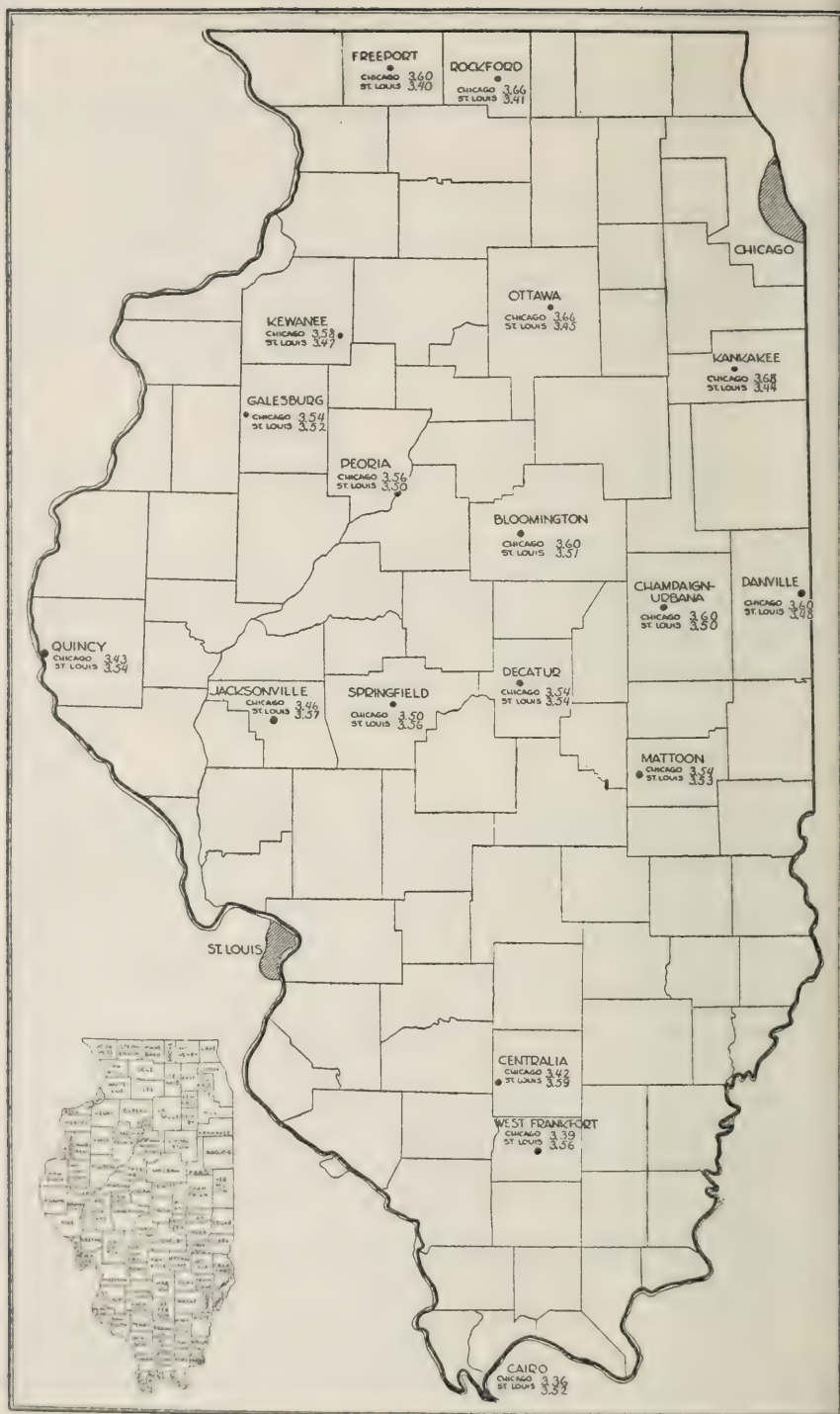


FIG. 1. — CHICAGO AND ST. LOUIS NET BLEND PRICES LESS COST OF TRANSPORTATION IN 18 ILLINOIS CITIES, 1943-1947

concrete or macadam roads compared with 435 miles in 1918.¹ In addition, gravel roads in many parts of the state are usable for trucking the year round. Improved roads have made it economically possible to ship milk and cream for much longer distances than in former years.

2. *The shift from sale of cream to sale of milk.* In the areas outside the Chicago and St. Louis milksheds, over twice as much Illinois milk was sold in whole form in 1944 as in 1929. In contrast, Illinois cream sales in 1944 were only three-fifths of those for 1929. Although part of the 1944 reduction in cream sales was caused by increased wartime demand for milk, cream sales in 1944 actually reflected a continuation of the reduction trend shown in the 1939 census, when they were 21 percent less than those in 1929.

3. *The use of paper containers for the intermarket shipment of milk.* The use of the single-service container is rapidly widening the area in which milk can be economically distributed from one plant. At least two Illinois dealers are regularly distributing milk in paper containers to over 20 markets located within a radius of 150 miles of the bottling plant. As a result of this type of operation, no local market in Illinois is free from either actual or potential competition from milk produced and bottled outside its local milkshed. For example, the Champaign-Urbana market, which formerly received all of its milk from local producers, is now regularly receiving milk packaged in paper containers from Peoria, Bloomington, and Chicago. This change has come about largely during the past two years.

4. *The more general use of Grade A milk.* Grade A milk is all milk that is approved as such by state or municipal health authorities. Several Illinois markets already sell Grade A milk exclusively or are in the process of becoming Grade A markets. This shift to Grade A production tends to encourage intermarket shipment of milk.

These four factors indicate the need for two major changes: First, *a standard method of pricing milk that will be fair to both producers and dealers and that can be used in any of the smaller markets in the state;* and second, *consolidating many of the producers' dairy associations into a smaller number of units operating over a larger area.*

The following methods of pricing milk and consolidating producers' dairy associations are suggested as a basis for a long-time program to meet these needs.

A Suggested Plan for Pricing Milk in Grade A Markets

1. *Use the 18-condensery average price or butter plus cheese or butter plus skim milk values, whichever is higher, as in the Chicago market, as*

¹ Data obtained through the courtesy of F. N. Barker, State Division of Highways, Springfield, Illinois, in a letter dated February 26, 1948.

the basis for pricing market milk and cream. The average price paid for milk at 18 condenseries adjacent to the Chicago milkshed is usually used as the basic formula price for paying for market milk (Class I), market cream (Class II), and evaporated milk (Class III) in the Chicago market. In 1945, for example, the 18-condensery price averaged \$2.60 per 100 pounds of 3.5 percent milk in the 70-mile zone. This 18-condensery price, on a monthly basis, was used as the basic formula price. The Chicago Federal Order also has a provision for substituting a formula of butter plus cheese values or butter plus skimmilk values in place of the 18-condensery average price, if either of these prices is higher than the condensery price. This provision tends to prevent the possible manipulation of the prices paid at the 18 condenseries.

2. *Use seasonal premiums above condensery, butter-cheese, or butter-skin values to encourage a seasonal production to meet market milk requirements.* In the Chicago market, for example, the Federal Order provides for the following premiums per 100 lb. above the 18-condensery price (or other price basis):

	Market Milk (Class I)	Market Cream (Class II)
May, June.....	\$.50	\$.30
July .....	.70	.40
August to November....	.90	.50
December to April.....	.70	.40

If the 18-condensery average price is \$2.60, the market milk price (Class I) for July would be \$2.60 + \$.70, or \$3.30 per 100 pounds of milk. With a premium of 40 cents, the price for market cream (Class II) in July would be \$2.60 + \$.40, or \$3.00 per 100 pounds of milk. The price for any milk used for evaporated milk would be \$2.60 with no premium.

3. *Use the Chicago or St. Louis blend price (less cost of transportation), whichever is higher, f.o.b. each market, as the basis for arriving at the minimum blend price in any Illinois Grade A market.* The table on the following page shows the Chicago and St. Louis minimum blend prices, less cost of transportation, for each of 18 Illinois markets.

The 1943-1947 five-year average of the Chicago blend price, f.o.b. Bloomington, for example, was \$3.60 per 100 pounds of 3.5 percent milk compared with \$3.51, the five-year average St. Louis price, f.o.b. Bloomington. Because the Chicago price is higher, it would be used as the basis for arriving at the minimum Grade A blend price in Bloomington.

Presumably milk in each smaller market would be sold to dealers on a classified use basis, similar to the Chicago or St. Louis plan. Seasonal premiums for Grade A milk and cream above the 18-condensery average price in each market would be determined at a level sufficient to get a

TABLE 1.—CHICAGO AND ST. LOUIS NET BLEND PRICES LESS COST OF TRANSPORTATION IN 18 ILLINOIS CITIES, 1943-1947

Cities	Chicago zone beyond 70 miles ^a	St. Louis zone ^b	Net blend prices 1943-1947		Price to be used (whichever is higher)
			Chicago ^c	St. Louis	
Bloomington.....	4	14	3.60	3.51	Chicago
Cairo.....	19	13	3.36	3.52	St. Louis
Centralia.....	13	6	3.42	3.59	St. Louis
Champaign-Urbana.....	4	15	3.60	3.50	Chicago
Danville.....	4	17	3.60	3.48	Chicago
Decatur.....	7	11	3.54	3.54	Chicago or St. Louis
Freeport.....	4	25	3.60	3.40	Chicago
Galesburg.....	7	13	3.54	3.52	Chicago
Jacksonville.....	11	8	3.46	3.57	St. Louis
Kankakee.....	..	21	3.68	3.44	Chicago
Kewanee.....	5	18	3.58	3.47	Chicago
Mattoon.....	7	12	3.54	3.53	Chicago or St. Louis
Ottawa.....	1	20	3.66	3.45	Chicago
Peoria.....	6	15	3.56	3.50	Chicago
Quincy.....	13	11	3.43	3.54	St. Louis
Rockford.....	1	24	3.66	3.41	Chicago
Springfield.....	9	9	3.50	3.56	St. Louis
West Frankfort.....	16	9	3.39	3.56	St. Louis

^a The zone from Chicago is computed by subtracting 70 miles from the shortest mileage, road or rail, from City Hall in Chicago to each city and deducting 2 cents for every 15 miles up to and including the 13th zone, and 1 cent for each zone after that.

^b The zone for each market from St. Louis is based on the mileage from City Hall, St. Louis. Six cents is deducted for first and second 10-mile zones, 2 cents per zone for the next two zones, and 1 cent for each zone beyond the fourth.

^c Twenty-nine cents has been added to the net blend price to pay transportation costs for hauling milk from outlying plants to the city plant within the 70-mile zone. This procedure gives a figure comparable to that of St. Louis, where the prices are f.o.b. St. Louis. This figure was supplied by F. J. Knox of the Chicago Pure Milk Association.

blend price in that market at least equal to the blend price of Chicago or St. Louis (less costs of transportation).

If any smaller market had a shortage of Grade A milk, premiums above the 18-condensery average price would have to be determined at a level somewhat above the minimum Chicago or St. Louis Grade A price in order to get enough milk to meet market needs.

Pricing Milk in Grade B Markets

1. *Use the 18-condensery average price (or other price basis), as in the Chicago market, as the minimum price for Grade B milk.* Usually the price paid to producers for milk in Illinois Grade B markets should be between the 18-condensery price and the Grade A blend price. Seasonal premiums should be used for Grade B milk in a manner similar to that for Grade A milk.

Pricing Milk in Other Whole-Milk Markets

2. *Attempt to obtain the 18-condensery average price (or other price basis), as in the Chicago market, as the minimum price for whole milk not sold as Grade A or Grade B milk in city markets.* Usually milk utilized for ice cream, ice cream mix, sweet cream and skimmilk products has a competitive value equal to or exceeding the condensery price.

As a long-run practice, it will be a sound policy for Illinois dairymen to seek markets that pay a higher price for whole milk than for milk made into American cheese, since this milk usually returns a somewhat lower price than that paid at condenseries.

On the other hand, milk made into American cheese usually returns a higher price than that paid for milk separated and sold as sour cream. Hence, producers selling milk to cheese factories should continue selling through this outlet until they are able to shift to a higher priced market outlet.

Suggested Method for Coordinating Cooperative Dairy Activities

Closer integration of producer association activities in Illinois is being made necessary by two things:

First, the shift from the sale of cream to the sale of whole milk has forced both independent private creameries and cooperative creameries to receive milk as well as cream.

Second, the intermarket shipment of milk in paper containers has broken down local milksheds so that a local milk producers' association can no longer adequately represent all the producers serving the market.

On the basis of these facts, the following program for coordinating producer activities is suggested:

1. *Divide the state into five or more operating districts.*
2. *Authorize the regional manager for each district to have charge of all bargaining, processing, manufacturing, and distribution operations in his district.*
3. *Merge all physical operations of the milk producers' associations or creameries, including receiving, processing, bottling, and manufacturing, with the operations of the creamery or milk producers' association in each district.*

Much progress has already been made in the physical handling of milk by several Illinois milk producers' associations. Because of the advantages gained, the new procedures should be continued. On the other hand, it is an unsound policy for the milk producers' associations and creameries affiliated with the same general farm organization to compete in purchasing milk in the same area. Since most creameries in the state are being forced into the milk business because of the sale of more milk and less cream, a long-run policy of integrating milk producer and creamery operations is an essential step if the best interests of producers and the general public are to be served.

4. *Combine the activities of the Illinois Milk Producers Association and the Illinois Prairie Farms Creameries, and make the manager of the*

combined organization responsible for coordinating the activities of the regional managers.

If producer association activities are integrated in the regional areas, a corresponding integration will also be necessary for the state as a whole.

Coordination of both state and regional activities in dairy marketing under the direction of one manager should be helpful in attaining the objective of expanding outlets for milk and its products, improving health, and encouraging intermarket shipment of milk and cream without hurting the interests of local producers in any area.

R. W. BARTLETT and W. E. COLLINS

MARKETING PEACHES AND STRAWBERRIES THROUGH SOUTHERN ILLINOIS FROZEN FOOD LOCKER PLANTS

Although fruit production is an important source of income to farmers in Edgar County and in Southwestern Illinois, the area has no large canneries or other commercial fruit processing plants with the exception of a few cider mills and an apple juice factory. In addition, the irregularity of fruit production in the area provides little incentive for building new plants. The result is that for many years all peaches and strawberries raised in this region have been sold locally or shipped to market centers as fresh produce.

In order to seek an alternative or supplementary market for peaches and strawberries in the area mentioned, a survey was taken of 26 local frozen food locker plants in Edgar County and Southwestern Illinois to determine their ability and capacity to prepare, package, freeze, store, and market peaches and strawberries.

The following conclusions were drawn from the survey:

(1) During the summer months most of the locker plants surveyed do not fully utilize their plant facilities or available labor supply.

(2) Few of the locker plants surveyed had adequate facilities for preparing and packaging fruits for freezing. What few operations were being carried on were on a small scale, performed in the plants or by housewives in their homes.

(3) Most of the plants surveyed had unused sharp-freeze capacity during peach and strawberry seasons. In two four-week seasons the 26 plants surveyed could sharp freeze two percent and eleven percent respectively of the problem area's average annual peach and strawberry crops.

(4) Quality control offers a serious problem. Few locker plants could afford full-time food technicians or could operate under continuous

factory inspection. Federal inspection of selected samples seems to be the best method for certifying quality.

(5) Storage space was limited in most of the locker plants surveyed. This may be a temporary condition since there were many current and contemplated plant expansions. In addition, there is a possibility that the percent of lockers rented may decrease.

(6) Transportation of frozen foods by locker plants is a limiting factor. This condition will continue until more "dry ice" becomes available or until mechanically refrigerated truck service becomes available on a common carrier basis. At present locker plants have only two practical alternatives: shipping in "Church containers" via Railway Express or in pasteboard boxes via any common carrier, each using "dry ice" as the refrigerant.

(7) Few locker plants have been able to sell at retail all the frozen peaches and strawberries they can process. They must rely on other outlets. The best method of sales now available for locker plants seems to be through frozen foods brokers; however, few individual locker plants could produce at sufficient volume to interest most brokers. If quality of the products could be controlled, development of a voluntary chain of producers using a common brand name could probably increase marketing volume to an extent that brokers or other marketing agencies would find it profitable to handle these Southern Illinois products.

(8) At present frozen food locker plants do not constitute an important market for peaches and strawberries in Edgar County and Southwestern Illinois. The market potential will not be of sufficient size and strength to influence fruit prices when supply is very great. At most, the present frozen food locker plants can use only an extremely small portion of the Southwestern Illinois peach and strawberry production.

S. T. RICE

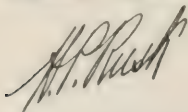
Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income pay-ments ⁸	Weekly wages, all manu-facturing industries, unadjusted ⁹	Indus-trial produc-tion ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All com-modities ¹	Farm products ²				In money ⁶	In pur-chasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932	65	48	56	96	60	57	60	74	51	58
1933	66	51	57	94	67	68	75	69	54	69
1934	75	65	76	100	79	73	74	80	70	75
1935	80	79	102	101	89	86	85	86	80	87
1936	81	81	105	100	105	109	110	101	93	103
1937	86	86	118	104	111	116	112	107	111	113
1938	79	69	90	98	96	107	109	100	85	89
1939	77	65	84	97	99	107	110	107	100	109
1940	78	68	89	98	105	114	116	115	114	125
1941	87	82	112	103	140	146	140	138	168	162
1942	99	105	141	117	193	200	169	175	245	199
1943	103	123	165	127	244	241	190	216	334	239
1944	104	124	165	132	255	240	182	240	346	236
1945	106	128	171	136	270	248	182	248	293	203
1946	121	148	204	151	308	302	200	254	266	170
1947	152	181	265	181	378	386	213	281	324	187
1947 Mar....	150	182	259	177	291	334	189	271	314	190
Apr....	148	177	252	180	288	354	197	270	311	187
May....	147	176	245	178	299	357	201	272	312	185
June....	148	177	255	180	329	321	178	276	320	184
July....	151	181	267	180	400	465	258	277	314	176
Aug....	154	182	276	184	377	331	180	278	323	182
Sept....	157	186	297	186	459	253	136	302	337	186
Oct....	159	190	292	187	566	569	304	290	342	190
Nov....	160	188	282	188	466	538	286	292	345	192
Dec....	163	197	296	191	438	446	234	297	356	192
1948 Jan....	166	199	310	196	385	434	221	297	350	193
Feb....	161	185	263	194	276	289	149	296	345	194
Mar....	161	186	272	193	295	304	158	298	...	192

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			May 1947	Current months, 1948		
	1935-39	1946	1947		March	April	May
Corn, bu.	\$.66	\$1.39	\$1.90	\$1.61	\$2.14	\$2.23	\$2.19
Oats, bu.	.31	.77	.97	.90	1.21	1.22	1.11
Wheat, bu.	.86	1.83	2.45	2.44	2.27	2.35	2.27
Barley, bu.	.62	1.29	1.59	1.55	1.80	1.90	1.85
Soybeans, bu.	.90	2.30	3.28	2.92	3.28	3.75	3.83
Hogs, cwt.	8.52	17.53	25.04	23.30	22.20	21.40	20.10
Beef cattle, cwt.	7.88	16.41	20.62	19.90	22.10	24.00	26.00
Lambs, cwt.	8.36	16.38	21.31	20.40	20.60	21.60	22.50
Milk cows, head	58.00	147.00	173.33	175.00	180.00	180.00	190.00
Veal calves, cwt.	8.66	16.78	23.30	22.70	24.70	26.60	27.00
Sheep, cwt.	3.58	6.99	7.39	7.90	9.10	8.90	9.00
Butterfat, lb.	.27	.63	.60	.59	.76	.81	.76
Milk, cwt.	1.68	3.80	4.00	3.60	4.55	4.35	4.25
Eggs, doz.	.19	.34	.41	.37	.39	.39	.37
Chickens, lb.	.15	.27	.27	.28	.29	.29	.29
Wool, lb.	.25	.43	.40	.35	.41	.41	.42
Apples, bu.	1.08	3.37	2.72	3.50	2.45	2.00	2.00
Hay, ton.	9.39	15.55	16.87	17.00	22.00	21.30	20.20
Potatoes, bu.	.91	1.70	1.91	1.70	2.10	2.05	2.00

¹² For sources of data in tables see previous page.

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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

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THE NEW FARM PROGRAM

The new farm legislation passed in the last hours of the 80th Congress is essentially a long-range price support program. The new act provides for a flexible farm price support program to become effective in 1950. It passed the Senate by a vote of 79 to 3. The House bill had provided for a stopgap measure that would continue until July 1950 most of the price support measures now in existence.

The bill that was finally passed by both Houses of Congress is a combination of the two bills. It provides that the price support of basic farm commodities — i.e., corn, wheat, cotton, tobacco, rice, and peanuts — will be continued at 90 percent of parity until the 1949 crop is marketed or June 30, 1950. At that time the long-time flexible farm price support program will come into effect for these commodities.

The provision to support the prices of the so-called Steagall commodities at 90 percent of parity was a wartime measure designed to encourage increased production of the commodities deemed to be in greatest demand. When this act was passed, it was not anticipated that it would continue under normal peacetime conditions.

The Senate bill assumed that, since the war was over, provision should be made for a desirable long-time price support program. However, the compromise with the House bill supports milk and its products, hogs, chickens and eggs at 90 percent of parity until December 31, 1949. At the discretion of the Secretary of Agriculture, other Steagall commodities will be supported at 60-90 percent of parity until December 31, 1949. Under the new act, tobacco will be supported permanently at 90 percent of parity with marketing quotas. The 1949 crop of wool will be supported at 90 percent of parity; but the future support for wool will be 60-90 percent of parity, the objective being to encourage an annual production of 360 million pounds of shorn wool.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

Natural History Survey

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In the new legislation, wool is given special consideration in order to stabilize the sheep industry at a level to meet a substantial part of our needs without relying upon the uncertainty of wool imports. At the present time the world demand for wool has forced the price to a high level. The support for wool will probably not be effective until the world consumption of wool falls much below the present level. At present the domestic production of wool has fallen below 300 million pounds, or to the lowest point in 47 years.

The long-time features of the bill, which becomes effective in 1950, provide that when there is a normal supply of any of the six basic commodities, corn, wheat, cotton, rice, peanuts, and tobacco, the price will be supported at 75 percent of parity. In addition, as the supply of a product increases by two percent, the price support drops one percent until it reaches 60 percent of parity when the supply of the product reaches 130 percent of normal production. Also as the supply falls to 70 percent of a normal supply the price support rises to 90 percent of parity.

A thought back of this long-time flexible price support policy is that, under the schedule provided, farmers will receive a larger total income for a large production than for a small production. This situation is desirable for consumers, who want abundant production, since it encourages farmers to produce a large output of food. Further, a definite floor below which the prices of these commodities will not be permitted to fall will have a stabilizing influence on the market price.

When the price of a farm commodity breaks seriously it is probably due in a measure to farmers' hastening to sell their products before prices sink lower during a downswing in prices. The actual floor under prices at a given level may have the effect of increasing the price at harvest time — in the case of grain, by perhaps 10 percent or more — when supplies are unusually high. Furthermore, the reasoning may be that when prices of farm products sink below 60 percent of parity, as they did in the early thirties, it will disrupt the entire national economy because farmers, as well as others, cease to be normal purchasers of other goods and services. This action leads to heavy unemployment and reduces the consumers' purchasing power for farm products. It is to the interest of the nation not to allow prices of farm products to fall to extremely low levels; in fact, it is essential, in order to maintain our national economy, to prevent net farm income from sinking to low levels.

When the long-range price support goes into effect, a new parity price formula also becomes effective. As is true of present parity prices, the new parity price formula is based on the relationship of the prices of all products farmers sell to the prices of the commodities farmers buy. Also, the relationship between the prices of these two groups of commodities in the period of 1909-14 is still used as a base period.

The difference between the old and new parity formulas is simply this: The old formula makes use of the relationship between prices of individual farm commodities in the period of 1909-14. Because of changes in methods of production, improvement in crop yields, and many other factors, that period does not reflect present-day price relationships. The new formula takes into account the relationship of the price of the individual farm product to the average price of all farm products for the ten immediately preceding years. This procedure keeps the parity prices of individual farm products adjusted to changing price relationships. It is an automatic formula that each year adds the new year and drops the oldest of the ten preceding years as a basis for determining the parity price of individual farm products.

The change from the old to the new parity formula changes the parity prices for individual farm products. In general, the parity prices of livestock and livestock products are increased while the parity prices of grain and cotton are reduced slightly. However, the average parity prices for all farm products as a group are the same under the old and new parity formulas.

The act further provides that, when the parity price of a farm product under the new formula is more than 5 percent below the old parity price, the adjustment to the new parity price will not exceed 5 percent of the old parity price in any one year.

The price support bill also provides for the support, at prices up to 90 percent of parity, of commodities other than the six basic ones. For this purpose such funds will be used as may be provided to the Secretary of Agriculture. The so-called Section 32 funds, which represent 30 percent of our import duties, are made available for farm price-support operations. In 1947-48 these funds amounted to 135 million dollars. At the present time 75 million dollars of this total are assigned to the school lunch program, leaving about 60 million dollars to be used to support various commodities. The Commodity Credit Corporation, of course, is permitted to support prices of products within reasonable limits if the products are storable and can be handled without too great a carrying charge. Section 32 funds, however, may be used to help support the price of perishable products. As a matter of fact, they represent a larger amount than has been used in any year except for subsidy payments made during the war years to hold down prices of food products.

Some features of the Senate bill dealing with the reorganization of agencies to handle various services that the government renders to farmers were eliminated from the bill in the conference between the Senate and the House. It was the intent of the Senate bill to place more responsibility on local farm people for directing the operations of the various agencies through which the federal government deals directly

with individual farmers. However, the price-support legislation which was retained in the bill accepted by both Houses is constructive in affording a transition from the present wartime price program to a sound long-time price-support program. The essential feature of the long-time program is that the support varies inversely with the supply of the product. This provision should give farmers adequate opportunity to adjust their production in line with changes in demand, because the price supports, which will be higher for products in short supply, will stimulate production of those commodities.

H. C. M. CASE

LEASING ARRANGEMENTS IN NORTHERN ILLINOIS

The information presented below should be helpful to landlords and tenants if used in conjunction with the information in "Better Farm Leases," Illinois Farm Economics, May 1947. Every farm presents an individual problem. Therefore, types of leases as well as leasing practices should vary from farm to farm. Conditions that cause variation follow: (1) Differences in productivity of farms; (2) condition and adequacy of improvements; (3) possibility of balancing one leasing practice against another to make the lease fair as a whole; (4) differences from farm to farm in the use of improved practices and in mechanization; and (5) bargaining power of both parties. The last involves considerations of honesty, managerial ability, experience, initiative and ambitions, health, pride in farm and community, ability to cooperate, and ability and willingness to finance needed improvements and operations; also the supply of and the demand for farms to rent.

Custom tends to stabilize leasing practices. The customs may be the result of trial and error over past decades. But conditions change, farms differ, and men do not have equal ability to organize and operate farms. Therefore, custom is not always a satisfactory basis for deciding on leasing practices for an individual farm.

The Study

In late 1947 information on leasing arrangements was obtained by an on-the-farm survey in Boone, DuPage, Kane, Lake, and McHenry counties, Illinois. Rented farms were selected at random in each township of the five counties. The study included a representative sample of about 100 leases for each of three major types of rental agreements in the area, namely; cash, livestock-share, and manager-operator leases. Crop-share cash leases are not common in the area. Therefore, they were included on only 24 farms.

Facts Obtained from the Study

1. Soil treatments. The percent of land limed and phosphated and soil treatment ratings indicated that farms with manager-operator agreements and livestock-share leases received better soil treatments than farms with cash leases. Farms rated good had two-thirds or more of the land limed or phosphated; those rated medium had one-third to two-thirds so treated; and those rated poor had less than one-third treated.

TABLE 1. — SOIL TREATMENTS USED WITH DIFFERENT TYPES OF LEASES IN BOONE, DUPAGE, KANE, LAKE AND MCHENRY COUNTIES, ILLINOIS, IN 1947

Item	Type of lease		
	Cash	Livestock-share	Manager-operator
Number of farms.....	94	105	99
Percent of land limed.....	30	41	59
Percent of land phosphated.....	17	32	55
Soil treatment rating			
Good.....	13	35	51
Medium.....	27	36	28
Poor.....	59	28	21

Soil treatment on cash lease farms was affected by the tenant's agreement to pay a part or all of the cost (Item 2), failure of lease to carry reimbursement clauses (Item 3), and failure of cash rent to adjust to changing prices (Item 4).

Soil treatments did not vary perceptibly for either type of lease with the age of the landlord (Item 8). Younger landlords may be more interested in soil improvement but older landlords have more available cash to invest.

2. Who paid for land improvements? Tenants paid the total cost of limestone on 49 percent of farms with cash leases and on only one percent of the farms with livestock-share leases. Landlords paid the total cost on 36 percent of the farms with cash leases and on 58 percent of the farms with livestock-share leases. By nature of the lease, the landlords usually assumed all the cost on manager-operated farms.

Likewise for rock phosphate, tenants paid the total cost on 39 percent of the farms with cash leases and on only one percent with livestock-share leases. The landlords assumed all the cost on 39 percent of the farms with cash leases and on 45 percent of the farms with livestock-share leases.

The cost of limestone and rock phosphate was divided 50-50 on more livestock-share farms than on cash lease farms.

3. Reimbursement for tenant's undepreciated cost. Although tenants on cash lease farms paid for much of the limestone and rock phosphate only four percent of the leases provided in writing for reimburse-

ment for the tenant's undepreciated cost when he leaves the farm. Such clauses were also generally lacking in livestock-share leases. Many tenants indicated that without protection they could not afford to go ahead with a highly constructive land-improvement program.

4. Cash rent. Seventy-three percent of the tenants with cash leases paid \$6 to \$11 an acre cash rent, and only four percent paid \$15 or more. In addition to cash rent, the tenant's contributions to limestone and phosphate costs (Item 2) should be noted; also that tenants with cash leases usually had houses, barns, and poultry houses that were in poorer condition and less adequate than tenants with livestock-share and manager-operator leases. Tenants with the latter types of leases paid no cash rent.

5. Who paid for tractor fuel cost and farm share of electricity on livestock-share farms? Of 100 livestock-share leases 90 provided for sharing tractor fuel cost on a 50-50 basis; one for the landlord to pay \$100 a year; and one for the landlord to pay the value of four and a half gallons of gasoline per acre.

Fifty-one percent of the landlords paid half of the farm share of electricity. Other landlords paid an agreed upon amount per month, for instance: \$1, \$2, \$3, \$4, etc., depending on the estimated amount of electricity used to pump water for livestock, to grind feed, and to light farm buildings exclusive of the residence.

6. Manager-operator leases. These leases included profit-sharing agreements of various kinds. They were most popular with city landowners and least popular with farmers and retired farmers. In general, they were characterized by indefinite contracts. They were divided into five groups according to the plan that was used to pay the manager-operator.

Group 1. Nineteen farms. The manager-operator received a salary and a percent of the net farm returns. The salary ranged from less than \$125 a month to more than \$325 a month, with nine managers receiving from \$125 to \$175 a month. Of the 19, four received 50 percent of the net farm returns; one, 40 percent; three, $33\frac{1}{3}$ percent; two, 25 percent; four, 26 percent; two, 10 percent; one, 8 percent; one, 5 percent; and one, 4 percent.

Group 2. Thirty-one farms. The manager received a salary and a percent of the gross farm receipts from one or more enterprises. One operator received \$175 a month, three percent of the milk checks, and five percent of the hog receipts. Another manager received \$100 a month and ten percent of all farm sales.

Group 3. Sixteen farms. The manager received a salary and a bonus, usually decided at the end of the year. Ten received \$125 to \$175 a month; five from \$176 to \$225; and one from \$226 to \$275.

Group 4. Twenty-four farms. The manager received a salary only, but

the salary was the highest for any group. Four received \$225 to \$275; two, \$276 to \$325; and two, more than \$326.

Group 5. Nine farms. The manager received no salary but he shared directly in the cash operating expenses and receipts without owning the machinery or livestock. Four shared on a $\frac{1}{3}$ - $\frac{2}{3}$ basis; two on a 40-60 basis; and one had a combination of divisions for different enterprises.

Perquisites. Of 95 married managers, 94 received the free use of living quarters. In addition, 91 received an average of 568 pounds of pork, beef, or mutton, live weight; and 311 gallons of milk. Eighty-two received free feed for poultry or were provided with poultry and eggs from the landlord's flock.

Criticisms. In general, the manager-operators were well satisfied with their arrangements but a few complained about the following situations: Lack of written agreements; poor accounting methods; unsatisfactory plans for reporting to landlord; inexperience of owners; and tendency of some owners to be interested in hobby farming.

7. Occupation of landlords. About 50 percent of the landlords with the three kinds of leases were business and professional men; 20 percent farmers and retired farmers; 15 percent housewives or widows; and 15 percent estates and others.

8. Age of landlords. Landlords over 65 years old for the three types of leases follow: Cash leases, 42 percent; livestock-share leases, 29 percent; and manager-operator leases, 16 percent. The tenants were much younger than the landlords. Such age relationships are to be expected because it usually takes years to accumulate enough capital to become an owner.

9. Blood relationships. Eighty-six percent of the tenants were not related to the landlords; 12 percent were sons or sons-in-law; and four percent were of other relationship.

10. Written leases. Only 64 percent of the leases were written: 73 percent for the cash leases; 65 percent of the livestock-share leases; and only 54 percent of the manager-operator leases. Many tenants indicated that they would like to have their leases in writing.

11. Length of tenure. Nineteen percent of the tenants had been on the same farm for ten years or longer, and 23 percent for one year or less.

12. Size of farm. The average size of farm was: Cash lease, 159 acres; livestock-share lease, 228 acres; and manager-operator lease 359 acres.

A more detailed summary of this farm lease study is being put in a mimeographed report which may be procured in the near future from farm advisers in the five counties or direct from the Department of Agricultural Economics, University of Illinois, Urbana, Illinois.

J. B. CUNNINGHAM

OUTLOOK FOR FARM LAND VALUES AS AFFECTED BY ECONOMIC AND TECHNOLOGICAL TRENDS¹

The appraiser is interested both in the general level of farm land values and in the differences likely to prevail between farm lands which have different characteristics of location, climate, topography, soil, and adaptability to new types of production or new technological developments. For example, the most significant technological development in farming during the past century was mechanization of field power and adoption of relatively large machines, which almost eliminated hand labor from the production of field crops. In the course of this change level, fertile lands were favored and simultaneous progress in rapid, cheap transportation removed much of the advantage which lands situated close to market centers had previously possessed. As a result lands in hilly sections with locations close to markets fell behind in value; witness the abandoned land in New York and New England and the forging ahead of level midwest lands where mechanization could have full sway.

Let us take up first those forces which will have a dominant influence on the general price level and, through farm product prices, affect the general level of farm land values. At least for the short run, inflation and deflation or the changing value of the dollar will have dominant importance. An inflated money is rarely allowed to complete its full swing downward, and money history reveals a tendency for money units to lose value over the long pull. We may, therefore, expect that the really long-time trend of prices will be upward. However, we are now at a high point in an inflationary boom period caused by the greatest war in history. Probably all will agree that the chances are strongly in favor of a decline in the general price level and in farm land prices between now and 25 years from now. Even the man on the street knows that farm land prices recently topped their 1920 level and stand at an all-time high for the nation as a whole. With farm commodity prices still high and large capital accumulations in the hands of farmers and others interested in farm land, we probably will see a further rise in land values before the downward swing gets started.

The causes of the present monetary inflation, as reflected in the price levels of most commodities and in farm land values, are well known. During wars governments collect vast sums through taxes and loans. They pay out this money in competition with civilian demand for all manner of goods. With unlimited demand at high prices, agriculture and industry strive to produce all the goods that labor and materials, aided by the best known technology, can possibly supply. Buying power keeps ahead of

¹ Portions of a paper presented at the Farm Appraisal Conference, University of Illinois, June 17, 1948. The author is Professor of Agricultural Economics and Associate Dean of the College of Agriculture, University of Illinois.

production and accumulation of inventories or unemployment are practically impossible. It is only when demand slackens or production outruns demand in some categories of goods that employment is reduced and prices turn down.

There is ample evidence that the United States economy, when running at full and uninterrupted employment on civilian products, can and will produce more goods of certain kinds than the domestic market will absorb. These goods are both agricultural and industrial in origin. This capacity and, in fact, the certainty of surplus production, is the fundamental reason why we cannot shut ourselves up within our national boundaries and control price levels without reference to the rest of the world.

In recent years the two-way nature of trade is better understood and the fallacies of a so-called "favorable balance of trade" have been, to a large extent, exploded, but there is still a disturbing resistance to foreign buying and a strong prejudice in favor of foreign selling. These will continue to place obstacles in the path of progress toward international equilibrium and the free exchange of goods. This prejudice aggravates the more tangible hindrances to world trade. These hindrances include: (1) unequal inflation of national currencies; (2) lack of gold or other means of international settlement of trade balances; (3) lack of exchangeable commodities because of wartime destruction of factories, mines, railways, ships, etc.; (4) warped production patterns favoring war goods instead of consumer goods; and (5) the closing of many national boundaries to trade.

Putting all these factors together there seems little chance that, over a twenty-five year period, world trade is likely to gain a freedom which has not existed since the first world war. This is, in part, an answer to those who assume that there cannot be a surplus of food and clothing in a hungry and naked world. In a physical sense they are right, but in the economic sense, it seems unlikely that we can expect to export agricultural or industrial products at a rate sufficient to maintain the current level of prices.

Some may think this view too pessimistic. Will not war-stimulated agricultural production subside and stay in balance with demand? Will not the tremendous federal debt cause government fiscal policies to favor easy money and continued high prices? Will not the great need for food in many foreign countries force them to find ways for buying our surplus? Will not our gain in population over a twenty-five year period cause us to need all we can produce at home? How about soil depletion? Everyone knows we are still wasting soil resources. Finally, there is the fact that we have had almost a decade of unusually good weather. When the weather cycle changes the surplus of agricultural production may disappear.

In answer to the first question, gains in agricultural production operate on a one-way street. A quick look at the experience of the 1930's is

convincing. In spite of a devastating drop in prices farmers continued to produce as much as the weather would let them. They could not do otherwise because their costs are largely inescapable. Interest and rent go on and family labor, in most cases, has no alternative. Equipment already purchased has a relatively long life. Only the minor costs for fuel, seed, fertilizers, etc., can be stopped by reducing production and there is the added difficulty of resuming volume when prices improve. It takes time to reduce production and gain it back on the farm. It is true that the proportion of avoidable cash costs has risen but with it there has also been an increase in the use of credit which is a factor operating against downward adjustments in output. Long-term mortgage credit on farms has, of course, declined about half since the 1920 inflation and this lends a stabilizing influence, but mortgage volume recently turned up again and many farm owners still have mortgages.

As to the big federal debt and the necessity for easy money, I have no doubt that any government likely to stay in power will try to maintain prices and employment. Employment will be the more difficult factor and, if it cannot be maintained at very high levels, buying power must decline with it. At this point the common tactics of labor leaders to gain higher hourly rates regardless of the number of workers employed is strongly against the interest of agriculture. If labor leaders could and would work effectively to get the largest annual income for all available workers, the farmer and the industrial worker would both gain. A few well-paid workers cannot consume our food production. The tax and public debt situation does not seem to offer any possibility of large scale replacement of private employment income with government employment or wholesale charity. The taxpayer is already carrying a heavy load which will prove more burdensome when employment and profits turn down.

As suggested previously there seem to be very great obstacles ahead in selling our prospective surplus of food, fiber and tobacco abroad. That the world needs these goods, there is no doubt, and the need seems certain to exist even twenty-five years from now. Buying power is the great problem. We cannot continue indefinitely to give our products away at the expense of the taxpayer.

The predicted gain in population has been evaluated by Allen Paul.¹ His estimate of a 20% increase for the United States by 1975 is a fairly liberal one. It does not look large enough to solve our surplus problem but it will help. It is dwarfed considerably when put beside the wartime gain of 30 to 33% in agricultural products and the outlook for further gains growing out of advancing technology.

Soil depletion is an unquestioned reality, but over a twenty-five year

¹ Asst. Prof. of Food Industry Research; Col. of Agr. Univ. of Ill., Urbana.

period it seems likely that we will continue to increase production on the acres remaining in use, bring in some additional land by irrigation and drainage, and release output for human consumption by further disposal of horses and mules, particularly in the South. These gains probably will more than balance the loss of production from soil depletion in a twenty-five year period. An official in the farm implement industry was recently quoted as saying the United States will need fifty million new acres by 1975, just to replace acreage lost by erosion. It seems to me his time period is too short. Such a prediction for a longer period, especially if world wars continue, seems entirely sound.

How much of the war and postwar gains in agricultural production should be accredited to unusually good weather, and hence expected to subside soon, is impossible to state. However, a 1946 mimeographed study by Sherman E. Johnson,¹ on "Changes in Farming in War and Peace," states that: "The factors of weather affecting farm production in 1942-44 probably were only 10 to 15% more favorable than the longer-time expectancy." He concludes, as do many other students of farm production, that most of the wartime spurt in farm output is irreversible. In his book "Agriculture in an Unstable Economy," T. W. Schultz² says: "Agriculture will stay in full production after the war, regardless of the performance of business or the level of foreign trade." He adds this ominous note: "Much of the added demand is temporary, however, and will disappear as war conditions recede."

Many of the problems peculiar to agriculture and ultimately responsible for changes in farm land values arise in the one-way elasticity of farm production and the relative inelasticity of demand for farm produced goods. As stated above, and commonly accepted, farm output moves up under the stimulus of price and the application of constantly improving technologies, but it does not swing back much when prices decline. The war experience shows that people will buy more of the relatively expensive foods, clothing and tobacco when well employed, but all recorded experience indicates that there is very limited opportunity for expansion in total food consumption. As T. W. Schultz says in the book mentioned above, "Agriculture has a steady gait, while other producers in the economy sometimes run and other times simply stand still."

This uneven gait between agriculture and industry in a modern economy is one of the major unsolved problems affecting farm commodity and farm land prices. When all who need jobs are employed with regular and reasonably high wages or salaries, the demand for food and clothing is strong and well sustained. When demand for industrial goods slackens, output is quickly curtailed and price declines are stubbornly

¹ Bureau of Agricultural Economics, U. S. Dept. of Agriculture.

² Professor of Agricultural Economics, University of Chicago.

resisted. The process is too well known to need description but it results in unemployment, thus reducing demand for the farmers' product, and at the same time it cuts down the quantity of industrial goods available for exchange in return for agricultural products. It is true that this is largely a cyclical phenomenon but we remember that the lack of balance between supply and demand following World War I had not found a satisfactory equilibrium when World War II began.

There remains the task of evaluating the twenty-five year trend in over-all volume of agriculture products and the more difficult undertaking of estimating the differential effects of the developing economic and technological forces on farm lands with different characteristics.

The preceding papers of this conference were not available when my paper was written, but there is plenty of evidence that technological advances are forging ahead in the manufacture and use of fertilizers, in plant and animal breeding, in the use of growth regulators, in pest control, and in further mechanization on farms, especially in the South. The usable gains coming from public and industrial research, and the stepped-up capacity of industry to furnish equipment and supplies for farmers, seem more impressive than in any comparable period of our history.

Our conclusion is that we not only need full employment at home and abundant world trade to provide markets for our wartime gains in farm production, but we shall need them even more for prospective gains in production over a twenty-five year period. Owners of farm land and the multitude of others whose welfare depends upon a healthy agriculture will be well advised to work toward these ends in every way possible.

What may we reasonably expect from reduced costs in farm production over a twenty-five year period? Up to this point we have considered almost entirely those forces affecting demand and supply as they relate to prices and the farmer's gross income. A reduction in costs could leave the farmer with a greater net income which after all is the real objective from a landowner's point of view. From a strictly monetary viewpoint the answer to this question is very unpromising. It is well known that farm prices are still formed on a highly competitive market, sensitive to any surplus whether held by farmers or by the government. In contrast, those things the farmer buys are largely subject to the rigidities of industrial and commercial prices and wages. Our experience supports the belief that to maintain prices and wages, now raised to a high level, industrial output will be curtailed even at the cost of widespread unemployment.

From a technological point of view there are good reasons to expect a reduction in the farmer's costs. During the past twenty-five years substantial reductions in cost per unit of products have been attained. These largely resulted from two main sources: (1) a reduction in labor re-

quired for growing and harvesting field crops, and (2) an increase in yields from crops and livestock. In the January-February number of *Illinois Farm Economics* for 1947, R. H. Wilcox makes the following statements based on cost-of-production studies by the Illinois Agricultural Experiment Station: "Their (the cost accounting farmers) cost records show that today farmers in the cash-grain area of Illinois are producing a bushel of corn with six minutes of man labor where thirty-four years ago thirty-two minutes were required. Oats are being produced with five minutes of labor per bushel compared with seventeen minutes thirty-four years ago. A bushel of soybeans is produced with ten minutes of man labor whereas it required fifty minutes in the early 1920's when soybeans were becoming established on Illinois farms." The rates paid to labor and the cash costs of capital inputs were going up through this period and according to Dr. Wilcox, it took an increase in yields to actually reduce the cost of a bushel of corn to about two-thirds the cost prevailing thirty-four years ago. The acre cost went up about \$4.00.

Labor requirements for livestock production have not experienced a comparable reduction but there is some promise in better designed buildings and applications of electric power over the next twenty-five years. On the other hand, the increases in production of milk, eggs and meat per animal unit have kept pace with crop yields and have helped materially to keep costs down. According to the mimeographed article by Sherman E. Johnson, previously referred to, milk produced per cow rose from 3,800 pounds a year in 1909 to almost 4,800 pounds in 1945, a gain of 25%. In the case of poultry, hogs and beef cattle, the production per unit of breeding stock made comparable gains. There are some promising developments in the offing which may even top these gains over the next twenty-five years. Added to further gains from breeding and sanitation, and with labor savings inherent in the electrification of farmsteads, these may have substantial effects in keeping farmers' costs down over the next twenty-five years. New practices in the management of pastures and hay crops are likely to complement these savings.

Technological changes in farm production, through their influence in reducing costs, offer the most optimistic note that I could find during this analysis. Reduced costs mean a gain not only for the farmer but for everyone who buys his product. For the farmer and the farm landowner to realize on this gain, however, markets must be available and there must be an outlet for the surplus farm population made unnecessary to the farm by reductions in the labor required to produce crop and livestock products. This again emphasizes the high importance of full employment in domestic industry and free exchange of goods internationally.

What can be foreseen in the way of similar forces causing price

advantages for particular farm lands over the next twenty-five years? Only the future will really tell, but at the risk of the prophet's usual fate, I will hazard a few predictions.

1. Mechanization will continue to favor the level, productive lands, especially in the South which, up to now, has not participated fully in the process of mechanizing field crop production.

2. Soils with impervious layers, which limit crop response to limestone and fertilizer applications, will fall farther behind in real value when compared with soils which make better use of moisture and allow better root penetration, thus having greater capacity to respond to modern soil management techniques.

3. Conversely, soils with good physical condition but with limited natural fertility will probably gain on the naturally fertile soils because of the outlook for increased dependence on fertilizers, especially nitrogen. The available supply of fertilizer nitrogen is twice the quantity used before the war. This development will favor the South which has many soils of good texture but low natural fertility.

4. Farm lands in good climatic situations, that is to say, with good growing seasons, freedom from frost and hail damage, and with good moisture supply, will gain on farms with less favorable climate, because the good climatic factors will permit maximum response to developing soil and crop technology.

5. New developments in insect control will favor those areas which in the past have suffered most from insects. This probably applies especially to the South which, because of its open winters, has been afflicted more severely by insects preying on both crops and livestock. Soil fumigation against nematodes and wire worms seems to offer relief to some winter vegetable areas, and may even favor field crops. Livestock has long paid a heavy toll to insects in the South. New sprays are reducing that handicap.

6. Weed control by spraying seems to have relatively uniform promise for nearly all kinds of farm land. Easy, cheap control of weeds and brush on pastures and ranges will help to restore many such lands to higher production and greater relative value. Farms almost abandoned to field bindweed, Canada thistle or other aggressive weeds will be favored.

7. Rapid, small unit transportation by truck and plane, coupled with wide use of quick freezing, will further reduce the advantage of land near cities, the principal use of which has been for truck crops. Counterbalancing this effect in part is a non-agricultural trend toward the development of resident and part-time farms along all the highways radiating out from cities. Lands especially suited to high quality vegetable and fruit production will be favored by the developments in transportation.

8. Farm lands used for the production of export crops, such as cotton and wheat, will be at a disadvantage unless foreign trade develops faster than expected. Wheat may be forced into use as a feed crop and some cotton land may be turned to corn and soybeans. These developments will offer additional competition for the Cornbelt but their first effect is against the lands compelled to make the change to what, for them, is a lower use.

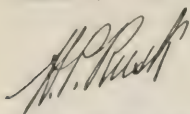
9. Changes in the diets of people living in the United States, both before and during the war years, showed trends toward more fruits, vegetables, and dairy products. However, this trend is unlikely to have much influence on land values because the acreage of land suited to fruit and vegetable production or to dairying is larger than can be used for these purposes in the immediate future and the value of such lands is, therefore, determined largely by competitive uses. One of the notable developments in this area was the very great increase in citrus fruits during recent years. A prospective over-production of citrus fruits is likely to accentuate the expected decline in land values in citrus areas.

10. Land is only one of the factors of production which must share in the farm income. Labor, operating capital in the form of supplies and equipment, and management must have their share if the land on which they are applied is to stay in agricultural use and retain its value as farm land. With changing economic and technological developments labor earns a smaller share although it commands a higher rate due to competitive wages and necessity for greater skill in farm work. Capital inputs have risen and call for a larger share of the income even with low interest rates. This share will rise with higher interest rates. Probably the factor which can now, and in the foreseeable future, command the greatest increase in its share of the farm income is management. Farming is rapidly and continuously becoming more complex and the available information to be applied in farming is coming from public and industrial research and development in a steady stream. Good management as compared to poor or indifferent management can contribute more to income and hence can command a greater share.

One conclusion which can be drawn from these facts is that land in a progressive, well-informed, industrious community will have a value advantage over land in a community of people less likely to manage well the economic and technological factors essential to success in modern farming.

Classical economics supports the view that advancing technology and pressure of population will cause land to have a larger share of the gross farm income. However classical economics considered ownership and management as one and in a twenty-five year period there is doubt about pressure of population on land in the United States.

R. R. HUDELSON



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

ILL. 8900. 8-48—9200
Permit No. 1247

TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income pay-ments ³	Weekly wages, all manu-facturing industries, unadjusted ⁴	Indus-trial production ⁵
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All com-modities ¹	Farm products ²				In money ⁶	In pur-chasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	74	51	58
1933.....	66	51	57	94	67	68	75	69	54	69
1934.....	75	65	76	100	79	73	74	80	70	75
1935.....	80	79	102	101	89	86	85	86	80	87
1936.....	81	81	105	100	105	109	110	101	93	103
1937.....	86	86	118	104	111	116	112	107	111	113
1938.....	79	69	90	98	96	107	109	100	85	89
1939.....	77	65	84	97	99	107	110	107	100	109
1940.....	78	68	89	98	105	114	116	115	114	125
1941.....	87	82	112	103	140	146	140	138	168	162
1942.....	99	105	141	117	193	200	169	175	245	199
1943.....	103	123	165	127	244	241	190	216	334	239
1944.....	104	124	165	132	255	240	182	240	346	236
1945.....	106	128	171	136	270	248	182	248	293	203
1946.....	121	148	204	151	308	302	200	254	266	170
1947.....	152	181	265	181	378	386	213	281	324	187
1947 Apr.....	148	177	252	180	288	354	197	270	311	187
May.....	147	176	245	178	299	357	201	272	312	185
June.....	148	177	255	180	329	321	178	276	320	184
July.....	151	181	267	180	400	465	258	277	314	176
Aug.....	154	182	276	184	377	331	180	278	323	182
Sept.....	157	186	297	186	459	253	136	302	337	186
Oct.....	159	190	292	187	566	569	304	290	342	190
Nov.....	160	188	282	188	466	538	286	292	345	192
Dec.....	163	197	296	191	438	446	234	297	356	192
1948 Jan.....	166	199	310	196	385	434	221	297	350	193
Feb.....	161	185	263	194	276	289	149	296	354 ¹¹	194
Mar.....	161	186	272	193	295	304	158	298	358 ¹¹	192
Apr.....	163	187	278	195	308	328	168	297	346 ¹¹	188

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			June 1947	Current months, 1948		
	1935-39	1946	1947		April	May	June
Corn, bu.....	\$.66	\$1.39	\$1.90	\$1.93	\$2.23	\$2.19	\$2.18
Oats, bu.....	.31	.77	.97	.92	1.22	1.11	1.06
Wheat, bu.....	.86	1.83	2.45	2.18	2.35	2.27	2.17
Barley, bu.....	.62	1.29	1.59	1.55	1.90	1.85	1.80
Soybeans, bu.....	.90	2.30	3.28	3.05	3.75	3.83	4.00
Hogs, cwt.....	8.52	17.53	25.04	23.80	21.40	20.10	23.30
Beef cattle, cwt.....	7.88	16.41	20.62	21.30	24.00	26.00	28.60
Lambs, cwt.....	8.36	16.38	21.31	21.90	21.60	22.50	26.80
Milk cows, head.....	58.00	147.00	173.33	175.00	180.00	190.00	195.00
Veal calves, cwt.....	8.66	16.78	23.30	23.10	26.60	27.00	27.60
Sheep, cwt.....	3.58	6.99	7.39	7.00	8.90	9.00	9.50
Butterfat, lb.....	.27	.63	.69	.60	.81	.76	.76
Milk, cwt.....	1.68	3.80	4.00	3.25	4.35	4.20	4.10
Eggs, doz.....	.19	.34	.41	.37	.39	.37	.38
Chickens, lb.....	.15	.27	.27	.28	.29	.29	.31
Wool, lb.....	.25	.43	.40	.36	.41	.42	.43
Apples, bu.....	1.08	3.37	2.72	3.50	2.00	2.00	2.00
Hay, ton.....	9.39	15.55	16.87	17.00	21.30	20.20	19.10
Potatoes, bu.....	.91	1.70	1.91	1.70	2.05	2.00	2.00

¹² For sources of data in tables see preceding issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

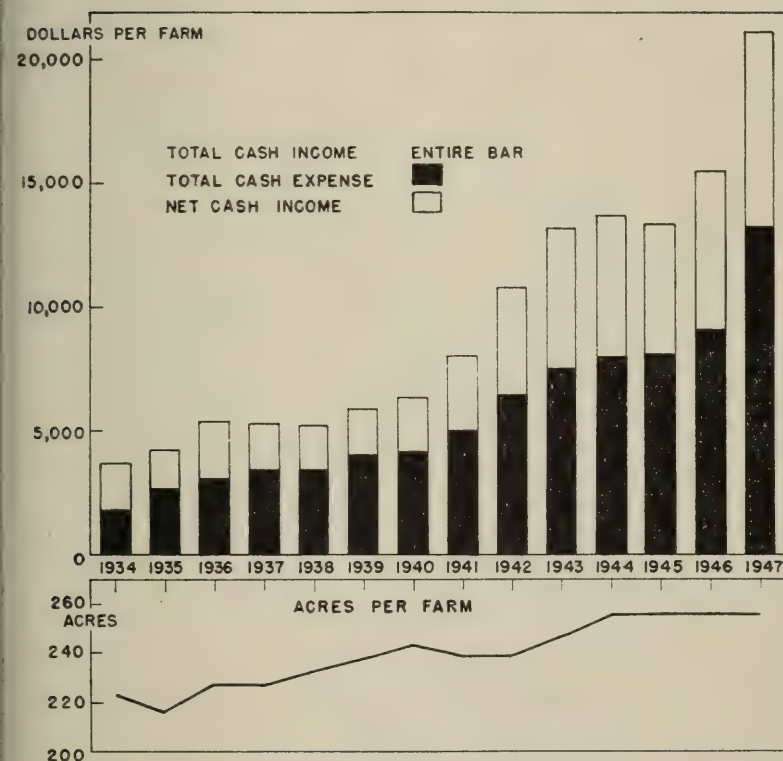
College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

August-September, 1948

Numbers 159 and 160

Summary of Annual Farm Business Reports of 2,519 Illinois Farms For the Year 1947



Total cash income, cash expenses, and net cash income for Illinois accounting farms, 1934-1947. Averages obtained by weighting area averages by number of census farms.

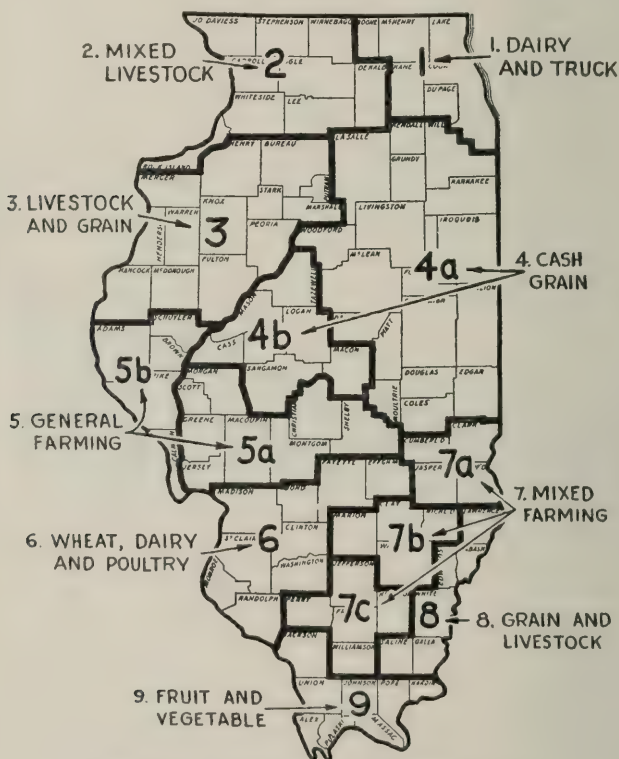
Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

FOREWORD

This analysis of farm income and expenses for 1947 and the past thirty years will be of special value during this critical postwar period. In addition to helping farmers make wise adjustments in the organization and operation of their farms, these data help one to keep alert to changing conditions and the data are useful in studying national agricultural problems and policies.

The report also provides helpful information for state and county extension organizations, Smith-Hughes and G.I. instructors, farm credit representatives, farm managers and rural appraisers, and other organizations and individuals who are working with farmers.

H. C. M. CASE



THE NINE MAJOR TYPE-OF-FARMING AREAS IN ILLINOIS

SUMMARY OF FARM BUSINESS RECORDS ON 2,519 FARMS IN ILLINOIS FOR 1947¹

A. G. MUELLER, F. J. REISS, and J. B. CUNNINGHAM

Net cash income an acre. The average net cash income an acre for accounting farms reached a new high in 1947, exceeding the previous record earnings in 1946 by \$3.65 an acre. The earnings figure was \$23.28 for 1947, compared with \$19.63 in 1946, \$3.00 in 1933, and an average of \$5.65 for 1934 to 1939 when earnings were practically the same in each year (Figure 1).

The average net cash income an acre for Illinois farms from 1933 to 1947 was as follows:

1933.....\$3.00	1938.....\$ 5.25	1943.....\$18.55
1934..... 5.40	1939..... 5.40	1944..... 17.30
1935..... 5.14	1940..... 6.82	1945..... 15.35
1936..... 7.40	1941..... 9.91	1946..... 19.63
1937..... 5.33	1942..... 14.99	1947..... 23.28

The net cash income an acre was computed by subtracting the value of unpaid labor from the cash balance for the year and dividing that difference by the number of acres in the farm. In order to calculate the state averages, farming-type area averages were weighted by the acres of land in farms (census) in each area.

These returns do not include the inventory changes or the money value of food, fuel, and other items of living obtained from the farm. The net cash income an acre is one of the best measures for comparing incomes of groups of farms over a period of years, or for contrasting the level of income for different type-of-farming areas. During any period of years earnings fluctuate more widely from year to year when inventory changes are included, since there are usually inventory losses when prices are declining and inventory increases when prices are rising.

Effect of high prices on earnings. In 1947 the ratio of prices received by Illinois farmers to prices paid for supplies was 129 percent of the 1910-1914 ratio. An index of prices received by Illinois farmers increased from 231 in 1946 to 300 in 1947 (1910-1914 = 100). Continued high level of production by Illinois farmers in addition to favorable price relationships and higher prices for farm products resulted in a record level of net cash income per acre in 1947.

This combination of a favorable price relationship and high prices along with a high level of production is unusual. Therefore, farmers should be cautious in making long-time commitments based on 1947 net earnings. In terms of bushels of corn or pounds of beef and pork under

¹ Averages in this report include 1,939 Farm Bureau Farm Management records and 580 Extension project records unless indicated otherwise.

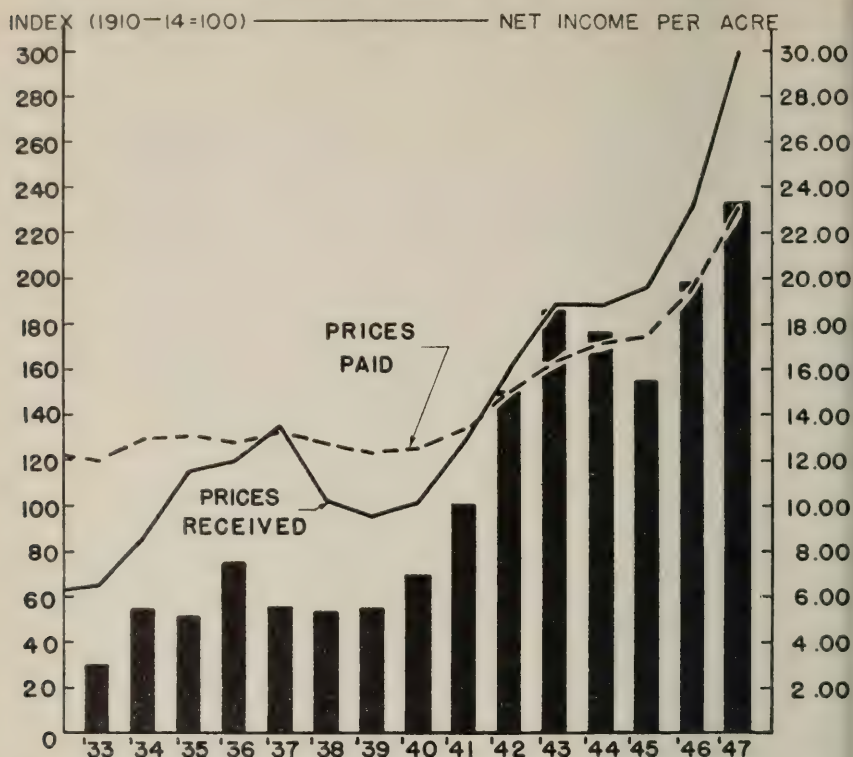


FIG. 1.— AVERAGE NET CASH INCOME AN ACRE (UNPAID LABOR DEDUCTED) ON ILLINOIS ACCOUNTING FARMS, PRICES PAID BY FARMERS IN THE UNITED STATES, AND PRICES RECEIVED BY ILLINOIS FARMERS, 1933-1947

current levels of farm prices, capital expenditures have not*been excessive since the end of the war provided such items have been nearly or wholly paid for in cash. Credit purchases of land or capital items, on the other hand, commit the farmer to payment in dollars out of future farm earnings.

In the future we can expect net income to decrease as farming costs increase more rapidly than farm prices. Also, the possibility of lower farm prices should be considered.

Accounting farms represent better-than-average conditions. In 1947 the accounting farms averaged 94 acres larger than all farms in the state, produced 2.6 more bushels of corn per acre and gave about 37 percent more gross income per farm when all farms were adjusted to the same size as the accounting farms. Previous studies also indicate that accounting farmers are more skillful in the organization and operation

Item	All Farms	Accounting Farms
Average size, acres.....	160	254
Corn yield an acre.....	39.5	42.1
Average gross cash income a farm.....	\$15,374 ^a	\$21,054

^a All farms adjusted to the same size as accounting farms.

of their farms and operate better quality land than the average for the state. Therefore, the data in this report represent better-than-average conditions.

Earnings compared for 32 years including World War I and World War II. Farm earnings on an inventory basis are shown in Figure 2 for accounting farms in east-central Illinois. This is the only area in the state where adequate records are available for the 32 years from 1916 to 1947, including two war periods. The year-to-year variations in earnings for this area are indicative of those for the state.

Included in calculating the net earnings are: (1) cash balance, (2) inventory change, (3) value of farm products used in the household, and (4) value of unpaid labor (Figure 2). The items above the line in Figure 2 are additions; those below the line are deductions. For example, in 1940 the value of unpaid labor and the decrease in inventory totaling \$718 should be subtracted from the sum of the cash balance and the value of farm products used in the household, totaling \$3,943, to get the net farm earnings of \$3,225 or \$12.13 an acre. The annual net earnings per acre are shown by the black line.

Farm earnings were higher during World War II than during World War I; also farm earnings have continued to increase since the end of World War II, as compared with sharp decreases in farm earnings following World War I.

Affecting the level of earnings was the 30 percent increase in average size of farm from 200 acres in 1916-1921 to 261 acres in 1942-1947. The additional acres, while not necessarily increasing net earnings per acre, added volume to the business and resulted in larger incomes per farm during World War II. The conditions that have kept farm income high in the years following World War II include a high level of domestic and foreign demand. Increased government expenditures resulting from a prolonged war and a world-wide recovery program have augmented this high level of demand. Other factors have been increased wage levels, high employment, and spending of wartime savings.

During the 32 years, 1916-1947, inventories increased in 21 years and decreased in 11; all but two of the decreases were between 1919 and 1932, following World War I. Increased inventories since 1933 were caused by

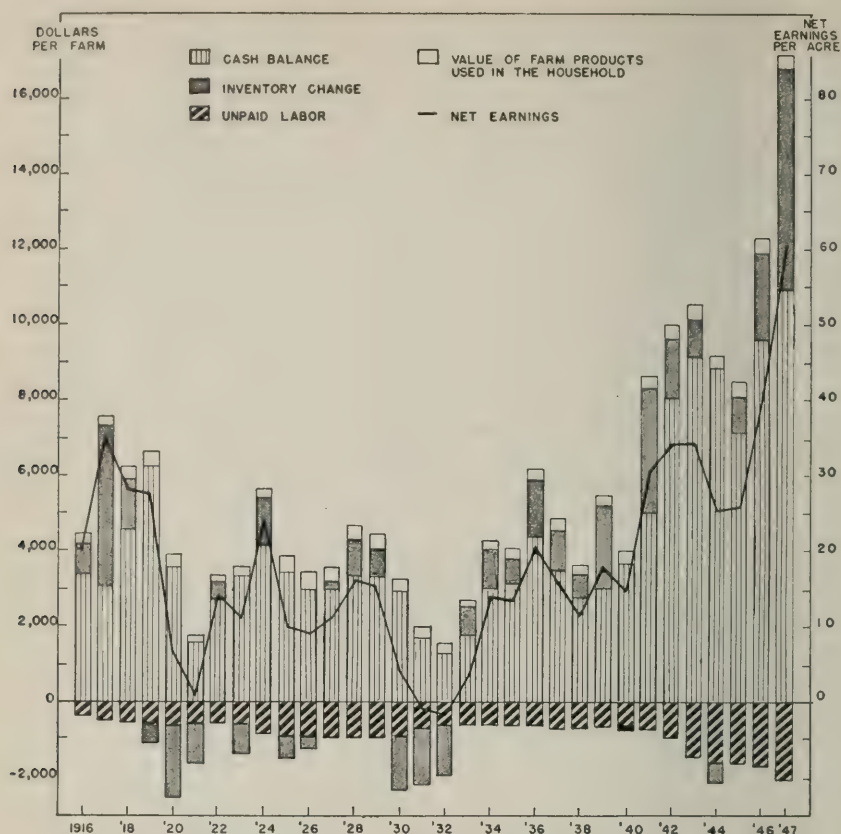


FIG. 2.—CASH BALANCE, INVENTORY CHANGE, UNPAID LABOR, AND VALUE OF FARM PRODUCTS USED IN THE HOUSEHOLD PER FARM; NET EARNINGS PER ACRE; ACCOUNTING FARMS IN EAST-CENTRAL ILLINOIS, 1916-1947

larger production and higher prices. A reversal of the trends in these two items would immediately be reflected in lower farm earnings.

Unpaid labor of the operator and other members of his family increased in value from \$360 in 1916 to \$951 in 1927, decreased to \$664 in 1940, and then increased to \$2,067 in 1947. During these years the amount of unpaid labor varied little, but the value varied with changes in going rates for hired labor.

Value of farm products used in the household. In the farm business reports which have been published separately and in the tables at the back of this report, the farm value of meat, milk, eggs, and other farm products used in the household was included as a source of income. These products have also been included in comparing the 1941-1947 records in

Table 1. Due to price increases, the average value of farm products used in the household has shown a steady increase since 1940.

Depreciation and maintenance expenses for the residence are omitted except on tenant-operated farms in the Farm Bureau Farm Management Service areas. Thus, the accounting for farm buildings in the Farm Bureau Farm Management Service areas and on owner-operated farms in other areas agrees with income tax rulings.

Cash income per farm. The average cash income and expenditures per farm in 1947 were the highest in the history of farm accounting in Illinois (Table 1). Total cash income in 1947 increased more than cash expenditures, resulting in a record average cash balance.

The cash balance of \$7,776 in 1947 was \$1,312 higher than in 1946 and over eight times greater than the average of \$968 for 1932, the low income year of the depression. Although the cash balance for 1947 increased by \$1,312 over the 1946 figure, additional income tax payments must be deducted from this sum in order to calculate the increase available for family living and savings.

Cash farm business expenditures. Illinois accounting farmers spent more money to run their farms in 1947 than in any previous year on record. This was due to (1) much higher prices paid for feed, livestock, and supplies; (2) the increasing need for farmers to purchase a greater percentage of the materials used to operate their farms; and (3) the upward trend in size of farms. Cash expenditures averaged 46 percent higher in 1947 than in 1946, an increase of \$4,198 per farm.

The average expenditure of \$13,278 per farm in 1947 may be contrasted with an average total cash *income* of \$13,442 per farm in 1943, 1944, and 1945.

Inventory increases. With the exception of 1944, inventories for all accounting farms have increased each year since the depression year of 1932; these increases have ranged from \$190 in 1945 to \$4,595 in 1947 (Table 1).

An inventory increase indicates that the combined value of livestock, grain, improvements, and machinery was larger at the end of the year than at the beginning. The ending inventory of each year is for the same farms as the beginning inventory, but the farms included in the averages are not exactly the same from year to year. Some old cooperators are dropped each year and new ones added.

The inventory increases since 1932 reflect the increases in prices for farm products, investments in improvements and machinery, and an accumulation of livestock and grain. For each year since 1932, excepting 1944, earnings have been higher when inventory changes have been

TABLE 1. — SELECTED ITEMS OF INCOME AND EXPENSE
ON ILLINOIS ACCOUNTING FARMS, 1941-1947^a

Item	1941	1942	1943	1944	1945	1946	1947
Acres per farm.....	239	239	246	255	255	254	254
Cash income per farm.....	\$8 002	\$10 865	\$13 204	\$13 748	\$13 376	\$15 544	\$21 054
Cash expenditures per farm.....	4 983	6 470	7 548	7 998	8 008	9 080	13 278
Cash balance.....	\$3 019	\$ 4 395	\$ 5 656	\$ 5 750	\$ 5 368	\$ 6 464	\$ 7 776
Inventory increase.....	2 082	1 562	778	-274	190	2 500	4 595
Farm products used in household....	284	342	397	405	413	456	485
Cash balance plus inventory increase and farm products used in house- hold.....	\$5 385	\$ 6 299	\$ 6 831	\$ 5 881	\$ 5 971	\$ 9 420	\$12 856
Unpaid labor.....	769	1 011	1 374	1 634	1 696	1 783	2 085
Net farm earnings.....	\$4 616	\$ 5 288	\$ 5 457	\$ 4 247	\$ 4 275	\$ 7 637	\$10 771
Gross receipts per acre ^b	\$31.26	\$36.87	\$41.53	\$40.27	\$41.44	\$53.34	\$79.65
Total expense per acre ^c	11.63	14.82	19.35	23.62	24.61	23.13	37.59
Net receipts per acre ^b	\$19.63	\$22.05	\$22.18	\$16.65	\$16.83	\$30.21	\$42.06
Net income per acre (cash basis) ^d	9.91	14.99	18.55	17.30	15.35	19.63	23.28

^a These state averages were obtained by weighting area averages. The last item, net income per acre (cash basis), was weighted by the acres of land in farms in each area; all other items were weighted by the number of census farms in each area.

^b Receipts include inventory changes and farm products used in household.

^c Total expense includes unpaid labor charge.

^d Cash balance less unpaid labor.

included. Inventory losses averaged \$274 in 1944 and \$866 for the three years, 1930-1932.

The inventory gain in 1947 was due largely to higher prices at the end of the year for grain and livestock. Since these price increases may or may not be temporary, the cash basis rather than the inventory basis reflects the ability of a farmer to pay interest charges, to buy the things his family needs, and to add to savings. Inventory changes must be included, however, to find the net position of the farm business for the year.

Variations in earnings from farm to farm. Earnings for the farms included in each area vary widely. Much of the farm-to-farm variation is due to the managerial ability of the operators, to the manner in which the farms are organized and operated, and to the physical capacities of individual farms. Also in 1947 when farm prices fluctuated widely, time of marketing was an important factor. The wide variation in rate earned on investment, net earnings per farm, and labor and management earnings indicate the opportunities which some farmers have for improving their incomes. These variations are largely due to factors over which the operator has some control.

Prices of farm products. Indicative of what has been happening to prices of many farm products is Figure 3 which gives the average monthly price of corn and hogs from January, 1947 through July, 1948. The price of corn more than doubled from January, 1947 to January, 1948. Early in 1947 the price of corn was depressed by large supplies on

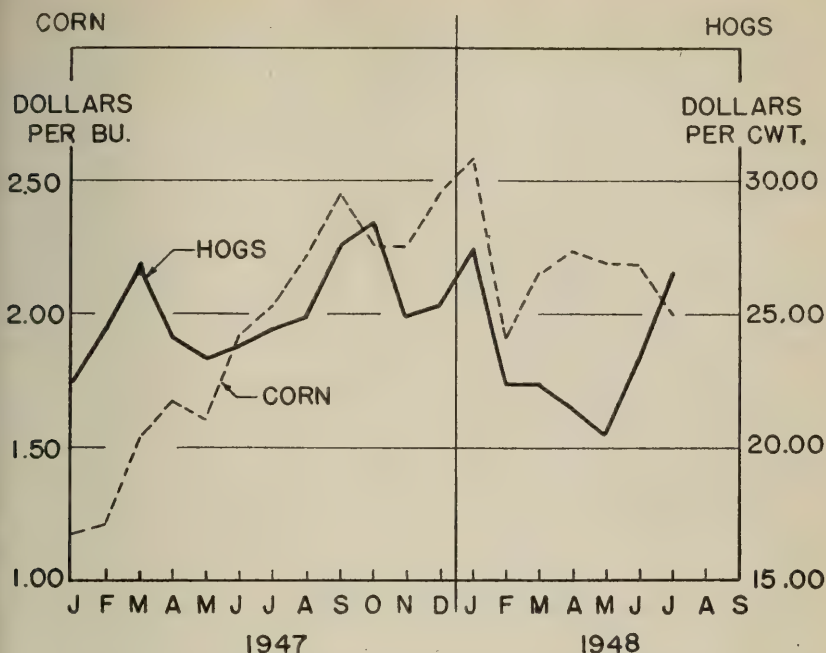


FIG. 3. — AVERAGE MONTHLY ILLINOIS FARM PRICES OF CORN AND HOGS FOR 1947 THROUGH JULY, 1948

hand from the bumper crop of 1946. Then, as demand continued strong and prospects for a short crop in 1947 developed, prices rose sharply, reaching a peak of \$2.57 in January, 1948.

This change in corn prices had a twofold effect on farm income. Cash receipts increased as corn held over from the bumper 1946 crop was sold at sharply higher prices; also inventory values of corn doubled from the beginning to the end of the year in 1947, resulting in increases in value of inventories on Illinois farms.

Livestock prices fluctuated during the year as indicated by the monthly prices of hogs. However, changes were not as great as in grain prices. These variations in farm prices were one of the important factors affecting earnings on individual farms in 1947.

Crop yields in Illinois. Crop yields in 1947 were 8 percent below the 1935-1944 average. The greatest decrease was in corn yields. The state average yield at 39.5 bushels per acre, the lowest since 1936, was 17.5 bushels below the record 1946 corn yield. Soybean and oats yields were also below the 1935-1944 average for the state.

Wheat yields were relatively good in 1947, the only major crop with

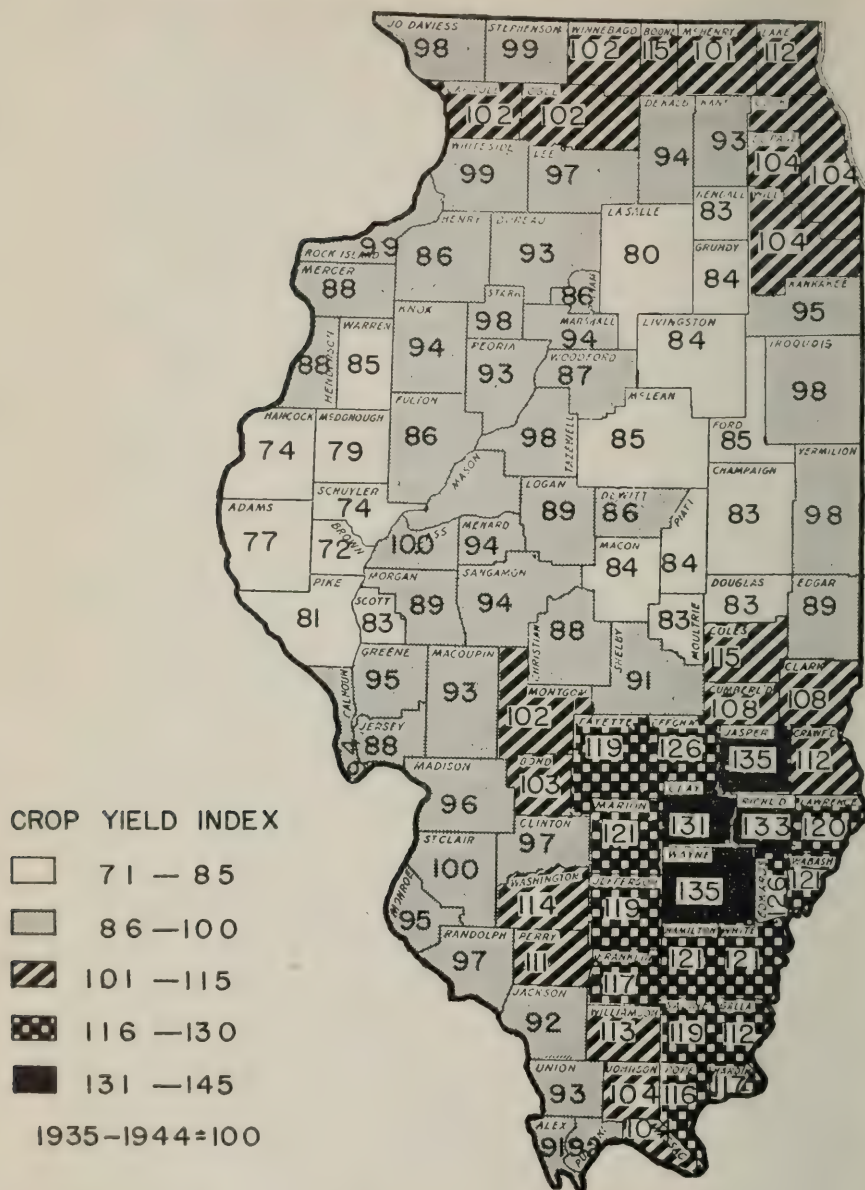


FIG. 4.—CROP YIELDS FOR 1947 COMPARED WITH 10-YEAR (1935-1944) AVERAGE YIELDS FOR THE SAME COUNTY. THE INDEXES ARE BASED ON COUNTY YIELDS OF CORN, OATS, WHEAT, AND SOYBEANS (DATA FROM ILLINOIS COOPERATIVE CROP REPORTING SERVICE)

yields above the 1935-1944 average. The same weather conditions that reduced corn and soybean yields, namely a wet spring and dry weather in early July, were generally favorable for wheat production.

Southeastern Illinois, comprising most of Farming-Type Areas 7 and 8, had high crop yields for the third consecutive year in 1947 (Figure 4). The rest of the state, except for 9 counties in the northeastern part of the state, had crop yields generally below the 1935-1944 average. Variable weather conditions resulted in extreme variations in yields with good and poor crops often occurring in adjoining fields. Late planting of some corn and soybeans resulted in lower quality and high moisture content in some parts of the state.

Variations in net cash income an acre. The 1947 net cash income an acre varied from \$7.49 an acre in Area 7 to \$30.43 in Area 3 (Table 2).

Net cash incomes an acre were higher in 1947 than in 1946 in all areas except Area 1. Increases varied from \$3.52 or 89 percent in Area 7 to \$7.25 or 45 percent in Area 5. Net cash income decreased \$4.20 in Area 1. Net cash income in 1947 for the state as a whole was \$3.65 or 19 percent above the 1946 cash income an acre and over four times higher than the 1935-1939 average.

The net cash income reflects, in part, the crop yields of the preceding year because a large percentage of the grain and livestock sales are from crops harvested in previous years. It also reflects current prices for products produced in the area. In 1947 higher farm prices were instrumental in increasing cash farm income throughout the state.

Variations in net income an acre with inventory change included. When inventory changes were included, the average net income an acre for the state as a whole was 48 percent higher in 1947 than in 1946

TABLE 2. — NET INCOME AN ACRE (CASH BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1945, 1946, 1947^a

Farming-Type Areas	1925- 1929	1930- 1934	1935- 1939	1940- 1944	1945	1946	1947
Area 1, Chicago Dairy.....	\$9.59	\$5.25	\$5.61	\$13.72	\$20.44	\$22.29	\$17.89
Area 2, Northwestern Mixed Livestock.....	7.94	4.92	7.23	16.23	20.74	22.87	26.57
Area 3, Western Livestock and Grain.....	9.05	4.86	6.99	16.93	21.47	25.03	30.43
Area 4, East-Central Cash Grain.....	8.91	4.46	7.15	18.15	18.98	27.15	30.16
Area 5, West-Central General Farming.....	6.35	3.23	4.62	11.58	13.18	16.36	23.61
Area 6, St. Louis Dairy and Wheat.....	3.26	2.03	3.32	5.79	6.77	7.79	10.52
Area 7, South-Central Mixed Farming.....	2.21	.91	1.96	3.47	2.18	3.97	7.49
Area 8, Wabash Valley Grain and Livestock..	4.57	1.73	3.96	6.58	5.39	7.67	11.26
State Average (weighted by acres in each area)	\$7.13	\$3.74	\$5.70	\$13.51	\$15.35	\$19.63	\$23.28

^a Includes records of the Farm Bureau Management Service for 1938-1947.

TABLE 3.—NET INCOME AN ACRE (INVENTORY BASIS) FOR ILLINOIS ACCOUNTING FARMS BY FARMING-TYPE AREAS FOR THE PERIODS 1925-1929, 1930-1934, 1935-1939, AND 1940-1944 AND FOR THE YEARS 1945, 1946, 1947^a

Farming-Type Areas	1925- 1929	1930- 1934	1935- 1939	1940- 1944	1945	1946	1947
Area 1, Chicago Dairy.....	\$11.04	\$2.64	\$10.03	\$20.54	\$20.96	\$32.01	\$46.21
Area 2, Northwestern Mixed Livestock.....	15.11	2.70	11.45	22.23	20.03	36.04	56.80
Area 3, Western Livestock and Grain.....	10.24	2.84	11.43	22.53	18.35	37.65	55.57
Area 4, East-Central Cash Grain.....	10.30	2.76	11.05	21.81	22.51	36.49	51.44
Area 5, West-Central General Farming.....	7.69	1.99	7.92	15.38	14.26	28.68	34.21
Area 6, St. Louis Dairy and Wheat.....	5.41	.92	5.55	8.37	5.87	14.81	18.96
Area 7, South-Central Mixed Farming.....	3.34	.55	3.76	5.46	1.92	10.74	15.17
Area 8, Wabash Valley Grain and Livestock	5.34	1.20	5.22	9.21	8.56	15.32	24.45
State Average (weighted by acres in each area).....	\$ 8.59	\$2.20	\$ 9.23	\$17.56	\$16.12	\$28.39	\$42.03

^a Includes records of the Farm Bureau Farm Management Service for 1938-1947.

(Table 3). This increase of 48 percent, with inventories included, is in contrast with an increase of 19 percent on the cash basis. Thus, the increase in inventories was much greater than the increase in cash income in 1947.

This is the fourteenth year since 1932 that the net income on the inventory basis has been higher than on the cash basis. The low years for the inventory basis were 1930, 1931, 1932, and 1944. In 1947 the range in net income an acre on an inventory basis was from \$56.80 in Area 2 to \$15.17 in Area 7.

Effect of quality of land on crop yields. Figure 5 shows the effect of soil productivity on crop yields. Farms in the Farm Bureau Farm Management Service were rated according to the system used by the Soils Division of the Illinois Agricultural Experiment Station. This system gives the most productive soils a rating of 1 and the least productive a rating of 10. Ratings are based on inherent or original productivity and are indicative of the capacity of the soils to produce crops.

Data of this type are valuable because they enable farmers to compare yields on their own farms with yields on farms having a similar quality of land. However, it should be kept in mind that the yields shown in Figure 5 are average yields over a wide area for one year (1947) only.

Intensity and volume of business. Some farmers add to the size of their farm business by bringing additional acres of land into the operating unit. Others achieve similar results by increasing the volume of business on the same acreage. In the initial stages this means adding livestock enterprises and changing the type of organization from straight grain farming to combinations of livestock and grain. Further intensification makes livestock the most important enterprise, and the farm is classified according to the degree of specialization in a single class of livestock or combination of livestock enterprises. The effect of these

BUSHELS PER ACRE

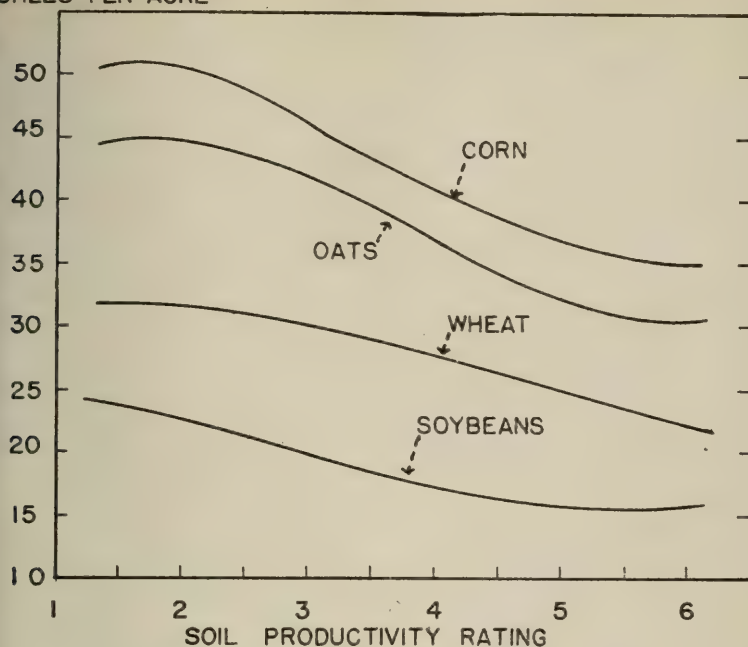


FIG. 5. — AVERAGE YIELDS OF CORN, OATS, WHEAT, AND SOYBEANS ON SOILS OF VARYING PRODUCTIVITY RATINGS, FARM BUREAU FARM MANAGEMENT SERVICE FARMS, 1947

steps in intensification can be seen in the data presented in the tables at the back of this report. Compare the figures for the same size groups under grain farms, dairy farms, hog farms, and so on.

After establishing a dairy farm, hog farm, or some other type of livestock farming, it is possible to intensify the business still further without changing the basic type of organization. This means a proportional expansion in the livestock enterprises on the farm or a further specialization in the predominating class of livestock. Table 4 presents three levels of intensity of this type. These farms were all classified as hog farms, and they were all under 180 acres in size and on good land with productivity ratings ranging from 1.0 to 2.9.

Note that the hog enterprise was increased 2.5 times from the least intensive to the most intensive group. The total value of feed fed increased from \$6,601 to \$16,926, but the total of all other input items increased from \$6,651 to only \$9,808. As a return on the additional volume of business, the labor and management earnings increased by \$5,720. The increase in rate earned on the investment reflects the more efficient

TABLE 4. — EFFECT OF INTENSITY OF BUSINESS ON HOG FARMS LESS THAN 180 ACRES
IN SIZE WITH SOIL PRODUCTIVITY RATINGS OF 1.0 TO 2.9,
LIVESTOCK AND GRAIN AREA, 1947

Item	Total inputs per farm		
	Under \$15,000	\$15,000 to \$19,999	\$20,000 or more
Number of farms.....	20	25	26
Average size of farm.....	139	150	153
Inputs per farm:			
Soil improvement.....	\$ 156	\$ 200	\$ 271
Buildings and fences.....	502	689	913
Machinery and power.....	1,799	2,100	2,733
Labor.....	2,197	2,444	2,796
Taxes and miscellaneous.....	506	615	852
Capital charge.....	1,491	1,842	2,243
Total non-feed input.....	(6,651)	(7,890)	(9,808)
Feed fed to:			
Sheep.....	\$ 79	\$ 61	\$ 20
Poultry.....	474	822	901
Dairy cattle.....	474	571	620
Other cattle.....	614	1,143	2,862
Hogs.....	4,960	6,706	12,523
Total feed fed.....	(6,601)	(9,303)	(16,926)
Total farm inputs.....	13,252	17,193	26,734
Total inputs per acre.....	95.34	114.32	175.21
Returns per farm:			
AAA, buildings and miscellaneous.....	\$ 61	\$ 98	\$ 98
Labor and machinery.....	193	127	223
Crop returns.....	9,898	11,983	14,502
Returns from:			
Sheep.....	107	54	23
Poultry.....	545	926	963
Dairy cattle.....	951	1,011	1,542
Other cattle.....	733	1,649	3,422
Hogs.....	7,414	9,392	18,217
All livestock.....	(9,750)	(13,032)	(24,167)
Total farm returns.....	19,902	25,240	38,990
Net returns per farm.....	\$6,650	\$ 8,047	\$12,256
Net returns per acre.....	47.84	53.49	80.32
Capital charge per acre.....	10.73	12.26	14.70
Net earnings per acre.....	\$58.57	\$ 65.75	\$ 95.02
Rate earned on investment, percent.....	27.3	26.8	32.3
Labor and management earnings.....	\$8,292	\$ 9,727	\$14,012
Months of labor on farm.....	15.1	16.3	19.5
Months of hired labor.....	2.2	3.2	4.3
Labor cost per crop acre.....	\$20.16	\$21.06	\$23.90
Power and machinery cost per crop acre.....	16.51	18.11	23.36
Percent tillable land in:			
Corn, soybeans, and grain silage.....	48	53	50
Small grains.....	29	21	24
Hay, pasture, and forage crops.....	22	25	26
Biennial and perennial legumes.....	19	21	25
Crop yields per acre:			
Corn, bushels.....	48	49	59
Soybeans, bushels.....	23	21	26
Oats, bushels.....	39	46	57
Hay, tons.....	2.3	2.4	2.4
Crop returns per tillable acre.....	\$77.77	\$ 87.24	\$102.56
Feed fed per tillable acre.....	52.05	68.06	119.92

use of capital on the most intensive farms. That this is not always the result of intensifying can be seen in the averages of the 25 farms with medium intensity. The increase in earnings was not at all proportionate to the additional inputs. A drop in efficiency of the major enterprise, hogs, was primarily responsible. Returns per \$100 feed fed to hogs dropped

from \$150 to \$140 and rose again to \$145, respectively, in the three groups of farms. Part of the high earnings on the most intensive farms came from the favorable margin of returns over the cost of purchased feed. (This has been credited as part of the crop return rather than letting it show as livestock efficiency.)

On the basis of the data presented here, it pays to intensify as long as the efficiency of the major enterprises does not suffer unduly. Under favorable price levels and cost relationships, such as we experienced in 1947, net returns and operators' earnings will show an increase following intensification; but if efficiency drops too far, the returns will be less than if some other means of increasing volume (extensive rather than intensive expansion) were adopted which would not result in a similar loss of efficiency.

Area groupings. The grouping of counties in northern Illinois (Tables 6, 7, 8, and 9) does not follow the conventional type-of-farming lines for the following reasons:

1. The data for these areas were taken from Farm Bureau Farm Management Service records from which an analysis based on the size and type of farm was prepared; therefore, since the records were sorted by type within groups, the area location was determined by geographical considerations.

2. To get enough records within the smaller areas to permit subsorting, it was necessary to make certain combinations, such as adding the northern tier of counties (which have a lot of dairy cattle) to the dairy area closer to Chicago.

3. Technological changes in kinds and varieties of crops, marketing facilities, and so forth, have wrought changes in the type of farming actually carried on in certain areas of the state since the conventional type-of-farming lines were first drawn. The introduction of soybeans, milk drying, paper milk cartons, and long distance truck hauling are examples of these changes. However, the area groupings used in this analysis should in nowise be construed as a revision of type-of-farming areas.

The counties included in the area groupings in northern Illinois are as follows:

<i>General Farming</i>	<i>Cash Grain</i>	<i>Livestock and Grain</i>	<i>Dairy</i>
Adams	Champaign	Bureau	Boone
Brown	Coles	Carroll	Cook
Cass	DeWitt	DeKalb	DuPage
Clark	Douglas	Henderson	Grundy
Fulton	Edgar	Henry	Jo Daviess
Mason	Ford	Knox	Kane
Menard	Iroquois	LaSalle	Kendall
Morgan	Kankakee	Lee	Lake
Pike	Livingston	McDonough	McHenry
Sangamon	Logan	Marshall-Putnam	Stephenson
Schuyler	McLean	Mercer	Will
	Macon	Ogle	Winnebago
	Moultrie	Peoria	
	Piatt	Rock Island	
	Tazewell	Stark	
	Vermilion	Warren	
	Woodford	Whiteside	

Data for southern Illinois (Tables 10, 11, and 12) are grouped according to conventional type-of-farming areas. Selected items analyzing the farm business are also presented in Table 5 according to established type-of-farming areas for the entire state.

TABLE 5. — FACTORS HELPING TO ANALYZE THE FARM BUSINESS BY FARMING-TYPE AREAS, 1947

Item	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9
Number of farms.....	97	354	375	1 010	202	233	129	79	40
Size of farm, acres.....	214	228	272	274	254	225	263	229	248
Total investment per acre.....	\$ 225	\$ 211	\$ 203	\$ 206	\$ 151	\$ 100	\$ 70	\$ 87	\$ 58
Cash receipts, total.....	25 895	25 874	30 286	24 670	20 753	11 971	9 732	11 109	6 644
Cash expenses, total.....	20 009	17 589	19 782	14 275	12 640	7 421	5 960	6 759	4 686
Cash balance.....	\$ 5 886	\$ 8 285	\$10 504	\$10 395	\$ 8 113	\$ 4 550	\$3 772	\$ 4 350	\$1 958
Increase in inventory.....	6 069	6 899	6 845	5 835	2 694	1 897	2 023	3 024	1 894
Total unpaid labor.....	2 053	2 222	2 218	2 125	2 112	2 186	1 802	1 768	1 480
Net farm income.....	\$ 9 902	\$12 962	\$15 131	\$14 105	\$ 8 695	\$ 4 261	\$3 993	\$ 5 606	\$2 372
Inventory basis									
Gross receipts per acre ^a	105.65	108.27	105.60	92.94	73.18	47.34	36.79	48.57	26.95
Total expenses per acre.....	57.20	49.33	48.09	39.81	37.10	26.09	19.82	21.96	15.61
Net receipts per acre.....	\$ 48.45	\$ 58.94	\$ 57.51	\$ 53.13	\$ 36.08	\$ 21.25	\$16.97	\$ 26.60	\$11.34
Cash basis									
Gross receipts per acre.....	120.84	113.38	111.22	89.97	81.64	53.28	36.99	48.45	26.80
Total cash expense per acre ^b	102.95	86.81	80.79	59.81	58.03	42.76	29.50	37.19	24.87
Net cash income per acre.....	\$ 17.89	\$ 26.57	\$ 30.43	\$ 30.16	\$ 23.61	\$ 10.52	\$ 7.49	\$ 11.26	\$ 1.93
Crop yields per acre									
Corn, bushels.....	50.2	53.0	45.3	45.9	34.9	32.0	33.1	43.4	34.1
Soybeans, bushels.....	19.7	21.0	21.5	22.7	18.0	14.4	14.6	17.4	12.3
Oats, bushels.....	63.3	50.2	41.6	38.7	33.7	25.9	21.4	23.6	15.0
Wheat, bushels.....	33.6	27.7	30.4	33.3	25.3	22.4	18.3	18.6	18.8

^a Farm products used in household included.^b Includes charge for unpaid labor.

TABLE 6. — SUMMARY OF BUSINESS RECORDS ON SELECTED SIZE AND TYPE GROUPS OF FARMS IN THE DAIRY AREA, 1947

Items		Under 180 acres		180 to 259 acres	
		Dairy farms	Hog farms	Dairy farms	Hog farms
Number of farms.....	1	49	21	40	19
Average size of farm.....	2	140	153	214	217
Soil rating on improved land.....	3	3.6	3.1	3.9	3.1
Inputs per farm:					
Land improvements.....	4	\$ 281	\$ 332	\$ 413	\$ 363
Buildings and fences.....	5	799	825	932	1 156
Machinery and power.....	6	2 239	2 062	2 944	2 893
Labor.....	7	2 922	2 608	3 516	3 363
Taxes.....	8	312	327	447	478
Miscellaneous.....	9	407	303	440	332
Capital charge.....	10	1 495	1 694	2 026	2 471
Total non-feed input.....	11	(8 455)	(8 151)	(10 718)	(11 056)
Feed fed to:					
Sheep.....	12	\$ 21	\$ 45	\$ 23	\$ 37
Poultry.....	13	718	807	752	872
Dairy cattle.....	14	5 375	883	6 644	1 705
Other cattle.....	15	53	1 350	230	1 937
Hogs.....	16	1 872	6 782	2 721	8 224
Total feed fed.....	17	(8 039)	(9 867)	(10 370)	(12 775)
Total farm inputs.....	18	16 494	18 018	21 088	23 831
Total inputs per acre.....	19	117.58	117.49	98.66	109.81
Returns per farm:					
AAA receipts.....	20	\$ 63	\$ 78	\$ 67	\$ 97
Buildings and miscellaneous.....	21	37	31	63	38
Labor and machinery.....	22	201	112	388	708
Crop returns.....	23	8 987	10 947	12 152	15 616
Returns from:					
Sheep.....	24	\$ 35	\$ 73	\$ 23	\$ 39
Poultry.....	25	868	883	816	995
Dairy cattle.....	26	8 249	1 909	10 546	3 027
Other cattle.....	27	26	2 182	233	2 469
Hogs.....	28	2 749	9 959	3 525	10 900
All livestock.....	29	(11 927)	(15 006)	(15 143)	(17 430)
Total farm returns.....	30	\$21 215	26 174	27 813	33 889
Net returns per farm.....	31	\$ 4 721	\$ 8 156	\$ 6 725	\$10 058
Net returns per \$100 non-feed input.....	32	56	100	63	91
Cash balance per farm.....	33	\$ 5 146	\$ 6 348	\$ 6 859	\$ 6 536
Inventory increase.....	34	2 774	5 051	3 732	7 817
Farm products consumed.....	35	429	512	465	572
Less unpaid labor.....	36	2 132	2 061	2 304	2 396
Net farm earnings.....	37	\$ 6 217	\$ 9 850	\$ 8 752	\$12 529
Net earnings per acre.....	38	44.31	64.23	40.95	57.73
Rate earned on investment, percent.....	39	20.8	29.1	21.6	25.4
Total investment per acre.....	40	\$ 213	\$ 221	\$ 190	\$ 228
Selected farm operating costs:					
Hired labor charge.....	41	\$ 780	\$ 548	\$ 1 212	\$ 968
Machinery hire.....	42	289	269	317	342
Machinery repairs and maintenance.....	43	554	493	739	785
Gasoline, fuel and oil.....	44	355	345	563	570
Machinery depreciation.....	45	547	527	789	776
Power and machinery cost per crop acre.....	46	24.79	19.18	22.51	17.76
Crop acres per farm.....	47	90	108	131	164
Months of labor per farm.....	48	20.7	18.4	24.0	22.6
Percent land area tillable.....	49	83	83	76	86
Percent tillable land in:					
Corn.....	50	24	41	28	42
Soybeans.....	51	...	4	1	4
Small grains.....	52	24	25	25	27
Grain silage.....	53	10	1	8	3
Hay and pasture.....	54	42	29	37	25
Biennial and perennial legumes.....	55	36	26	34	23
Crop yields per acre:					
Corn, bushels.....	56	47.0	51.7	48.1	49.3
Soybeans, bushels.....	57	...	19.5	23.6	19.0
Oats, bushels.....	58	57.8	54.1	55.2	44.2
Wheat, bushels.....	59	...	...	...	...
Crop returns per tillable acre.....	60	\$ 76.30	\$ 85.71	\$ 73.55	\$ 82.49
Feed fed per tillable acre.....	61	69.15	77.93	63.89	68.09

TABLE 7.—SUMMARY OF BUSINESS RECORDS ON SELECTED SIZE AND TYPE GROUPS OF FARMS IN THE CASH GRAIN AREA, 1947

	Under 180 acres		180 to 259 acres		260 to 339 acres		340 acres or more	
	Grain farms	Hog farms	Grain farms	Hog farms	Grain farms	Hog farms	Grain farms	Hog farms
1	62	53	145	37	111	22	109	19
2	152	146	223	223	302	297	462	470
3	2.4	2.4	2.3	2.6	2.3	2.5	2.3	2.6
4	\$ 241	\$ 234	\$ 328	\$ 333	\$ 391	\$ 565	\$ 707	\$ 716
5	515	576	581	814	749	1 024	1 058	1 200
6	1 858	2 107	2 427	2 685	3 084	3 878	4 322	4 458
7	2 043	2 361	2 584	2 747	3 025	3 716	4 284	4 812
8	317	327	492	501	659	604	980	910
9	160	258	194	408	205	543	277	389
10	1 693	1 802	2 368	2 497	3 075	3 428	4 495	4 582
11	(6 827)	(7 665)	(8 974)	(9 985)	(11 188)	(13 758)	(16 123)	(17 067)
12	\$ 59	\$ 185	\$ 50	\$ 74	\$ 115	\$ 584	\$ 93	\$ 171
13	541	750	687	648	623	398	533	439
14	498	559	539	635	769	578	740	810
15	497	898	897	1 898	1 120	3 510	2 395	5 333
16	1 488	6 745	2 013	8 640	2 264	12 905	3 576	13 870
17	(3 083)	(9 137)	(4 186)	(11 895)	(4 891)	(17 975)	(7 337)	(20 623)
18	9 910	16 802	13 160	21 880	16 079	31 733	23 460	37 690
19	65.04	114.85	58.98	97.95	53.22	106.70	50.80	80.15
20	\$ 55	\$ 53	\$ 96	\$ 75	\$ 101	\$ 104	\$ 130	\$ 133
21	28	21	26	21	51	79	59	54
22	357	320	250	179	386	266	482	245
23	11 762	10 993	16 746	15 028	21 256	20 836	31 679	28 299
24	\$ 105	\$ 295	\$ 72	\$ 146	\$ 143	\$ 876	\$ 141	\$ 181
25	686	872	818	661	705	437	579	420
26	898	883	892	1 083	1 159	937	1 120	1 218
27	781	1 426	1 345	2 608	1 616	4 855	3 108	8 003
28	2 434	10 171	3 200	12 201	3 483	18 744	5 473	19 959
29	(4 904)	(13 647)	(6 327)	(16 699)	(7 106)	(25 849)	(10 421)	(29 781)
30	17 106	25 034	23 445	32 002	28 900	47 134	42 771	58 512
31	\$ 7 196	\$ 8 232	\$10 285	\$10 122	\$12 821	\$15 401	\$19 311	\$20 822
32	105	107	115	102	115	112	107	122
33	\$ 5 609	\$ 7 803	\$ 9 187	\$10 994	\$11 080	\$12 836	\$16 554	\$18 364
34	4 771	3 816	5 040	3 144	6 380	7 827	8 868	8 769
35	350	426	419	444	442	456	501	529
36	1 841	2 012	1 993	1 962	2 005	2 291	2 118	2 258
37	\$ 8 889	\$10 033	\$12 653	\$12 620	\$16 897	\$18 828	\$23 805	\$25 404
38	58.34	68.58	56.71	56.50	52.62	63.31	51.55	54.02
39	26.3	27.8	26.7	25.3	25.8	27.5	26.5	27.7
40	\$ 222	\$ 246	\$ 212	\$ 224	\$ 204	\$ 230	\$ 195	\$ 196
41	\$ 205	\$ 349	\$ 591	\$ 785	\$ 1 019	\$ 1 425	\$ 2 167	\$ 2 554
42	301	334	330	405	377	436	453	588
43	494	570	635	684	885	1 219	1 368	1 285
44	338	384	508	534	675	743	1 058	888
45	516	525	663	674	829	1 056	1 138	1 214
46	15.12	19.31	13.13	16.11	12.29	16.97	11.68	14.64
47	123	109	185	167	251	228	370	305
48	14.0	15.8	17.6	18.4	20.9	24.6	28.8	30.8
49	93	92	94	88	93	92	90	81
50	42	42	41	41	39	43	39	39
51	16	7	20	13	21	10	23	12
52	21	22	22	22	23	22	22	20
53	..	..	..	1	..	1	..	2
54	19	28	17	23	16	23	16	26
55	16	22	13	19	13	19	12	20
56	49.2	50.2	48.4	45.5	45.0	46.1	45.1	43.4
57	27.8	26.1	21.8	21.0	21.4	19.1	20.9	20.3
58	40.2	42.8	40.2	37.3	36.6	40.0	38.6	43.5
59	26.1	31.4	29.0	27.8	27.6	33.8	28.3	28.6
60	\$ 82.54	\$ 81.22	\$ 80.07	\$ 75.94	\$ 75.20	\$ 75.87	\$ 75.91	\$ 73.07
61	21.65	67.70	20.05	60.77	17.36	65.83	17.67	53.92

TABLE 8.—SUMMARY OF BUSINESS RECORDS ON SELECTED SIZE AND TYPE GROUPS OF FARMS IN THE LIVESTOCK AND GRAIN AREA, 1947

Items		Under 180 acres			
		Grain farms	Hog farms	Dairy farms	Mixed livestock
Number of farms.....	1	36	104	33	20
Average size of farm.....	2	152	147	135	153
Soil rating on improved land.....	3	2.6	2.8	3.3	3.2
Inputs per farm:					
Land improvements.....	4	\$ 243	\$ 223	\$ 216	\$ 239
Buildings and fences.....	5	691	729	648	618
Machinery and power.....	6	1 998	2 169	1 968	2 164
Labor.....	7	2 376	2 541	2 694	2 626
Taxes.....	8	325	349	288	277
Miscellaneous.....	9	229	291	362	248
Capital charge.....	10	1 718	1 746	1 402	1 642
Total non-feed input.....	11	(7 580)	(8 048)	(7 578)	(7 814)
Feed fed to:					
Sheep.....	12	\$ 95	\$ 47	\$ 15	\$ 738
Poultry.....	13	505	793	701	1 008
Dairy cattle.....	14	511	692	3 387	1 090
Other cattle.....	15	763	1 473	253	2 654
Hogs.....	16	1 871	7 724	2 235	3 658
Total feed fed.....	17	(3 745)	(10 729)	(6 591)	(9 148)
Total farm inputs.....	18	11 325	18 777	14 169	16 962
Total inputs per acre.....	19	74.48	127.72	105.26	111.15
Returns per farm:					
AAA receipts.....	20	\$ 55	\$ 59	\$ 50	\$ 51
Buildings and miscellaneous.....	21	82	27	31	27
Labor and machinery.....	22	265	179	301	215
Crop returns.....	23	11 714	11 248	7 805	9 753
Returns from:					
Sheep.....	24	\$ 114	\$ 62	\$ 21	\$ 574
Poultry.....	25	562	887	864	1 257
Dairy cattle.....	26	928	1 347	5 162	1 950
Other cattle.....	27	1 048	1 952	332	3 925
Hogs.....	28	2 929	11 275	3 443	5 835
All livestock.....	29	(5 581)	(15 523)	(9 822)	(13 541)
Total farm returns.....	30	17 697	27 036	18 009	23 587
Net returns per farm.....	31	\$ 6 372	\$ 8 259	\$ 3 840	\$ 6 625
Net returns per \$100 non-feed input.....	32	84	103	51	85
Cash balance per farm.....	33	\$ 4 323	\$ 6 991	\$ 4 396	\$ 5 827
Inventory increase.....	34	5 488	4 615	2 625	4 017
Farm products consumed.....	35	347	478	491	587
Less unpaid labor.....	36	2 066	2 079	2 271	2 164
Net farm earnings.....	37	\$ 8 092	\$10 005	\$ 5 241	\$ 8 267
Net earnings per acre.....	38	53.21	68.05	38.94	54.17
Rate earned on investment, percent.....	39	23.5	28.7	18.7	25.2
Total investment per acre.....	40	\$ 226	\$ 237	\$ 208	\$ 215
Selected farm operating costs:					
Hired labor charge.....	41	\$ 310	\$ 462	\$ 423	\$ 462
Machinery hire.....	42	282	320	322	227
Machinery repairs and maintenance.....	43	492	579	504	548
Gasoline, fuel and oil.....	44	384	372	325	366
Machinery depreciation.....	45	487	565	514	593
Power and machinery cost per crop acre.....	46	16.51	19.72	23.22	20.04
Crop acres per farm.....	47	121	110	85	108
Months of labor per farm.....	48	15.8	17.2	18.3	17.9
Percent land area tillable.....	49	91	89	81	83
Percent tillable land in:					
Corn.....	50	45	45	34	42
Soybeans.....	51	8	3	2	1
Small grains.....	52	24	25	21	25
Grain silage.....	53	1	1	4	3
Hay and pasture.....	54	22	26	39	28
Biennial and perennial legumes.....	55	20	23	35	25
Crop yields per acre:					
Corn, bushels.....	56	50.0	50.9	48.8	46.7
Soybeans, bushels.....	57	23.9	22.2	14.4	13.6
Oats, bushels.....	58	48.0	45.9	45.3	42.5
Wheat, bushels.....	59	35.3	25.5	.....	.....
Crop returns per tillable acre.....	60	\$ 84.08	\$ 85.58	\$ 70.57	\$ 76.22
Feed fed per tillable acre.....	61	26.94	82.05	60.78	71.98

TABLE 8.—SUMMARY OF BUSINESS RECORDS ON SELECTED SIZE AND TYPE GROUPS OF FARMS IN THE LIVESTOCK AND GRAIN AREA, 1947 (CONTINUED)

	180 to 259 acres				260 to 339 acres			
	Grain farms	Hog farms	Beef cattle farms	Mixed livestock	Grain farms	Hog farms	Beef cattle farms	Mixed livestock
1	47	98	18	17	37	54	17	17
2	222	216	208	220	302	297	310	300
3	2.2	2.7	2.7	2.7	2.3	2.4	2.4	2.9
4	\$ 436	\$ 345	\$ 346	\$ 292	\$ 493	\$ 433	\$ 502	\$ 359
5	805	863	1 022	782	956	1 156	1 330	1 307
6	2 434	2 687	3 022	2 889	2 871	3 354	3 833	2 990
7	2 677	3 104	3 230	2 810	3 431	3 730	4 589	4 018
8	422	434	497	435	615	622	797	660
9	198	390	229	382	267	437	436	333
10	2 356	2 469	2 698	2 634	3 225	3 244	3 880	3 155
11	(9 328)	(10 292)	(11 044)	(10 224)	(11 858)	(12 976)	(15 367)	(12 822)
12	\$ 49	\$ 118	\$ 81	\$ 630	\$ 115	\$ 149	\$ 21	\$ 440
13	423	589	609	654	433	589	578	899
14	454	1 042	331	907	608	459	312	1 025
15	1 274	2 398	12 563	5 770	2 180	3 562	15 487	6 038
16	3 150	10 477	5 323	6 304	3 895	12 878	7 342	6 303
17	(5 350)	(14 624)	(18 907)	(14 265)	(7 231)	(17 637)	(23 740)	(14 705)
18	14 678	24 916	29 951	24 489	19 089	30 613	39 107	27 527
19	66.16	115.53	143.94	111.31	63.26	103.20	126.17	91.76
20	\$ 79	\$ 90	\$ 56	\$ 58	\$ 118	\$ 101	\$ 106	\$ 98
21	30	51	227	14	59	48	32	38
22	220	206	393	170	320	284	223	556
23	17 570	15 353	15 829	16 030	23 435	19 412	22 767	19 649
24	\$ 64	\$ 141	\$ 135	\$ 753	\$ 236	\$ 198	\$ 35	\$ 580
25	520	672	588	689	470	621	662	948
26	814	1 762	729	1 569	1 171	887	430	1 669
27	1 908	3 489	18 522	8 420	3 218	4 864	20 735	9 235
28	4 889	15 382	8 284	8 564	6 286	19 759	10 794	9 647
29	(8 195)	(21 446)	(28 258)	(19 995)	(11 381)	(26 329)	(32 656)	(22 079)
30	26 094	37 146	44 763	36 267	35 313	46 174	55 784	42 420
31	\$11 416	\$12 230	\$14 812	\$11 778	\$16 224	\$15 561	\$16 677	\$14 893
32	122	119	134	115	137	120	109	116
33	\$ 6 735	\$11 107	\$ 6 455	\$ 6 455	\$13 343	\$10 712	\$11 222	\$11 929
34	8 773	5 268	12 663	9 522	7 943	9 803	11 188	7 634
35	385	492	459	446	467	579	569	733
36	2 121	2 168	2 067	2 012	2 304	2 289	2 422	2 245
37	\$13 772	\$14 699	\$17 510	\$14 411	\$19 449	\$18 805	\$20 557	\$18 051
38	62.07	68.15	84.14	65.45	64.45	63.40	66.33	60.07
39	29.2	29.8	32.4	27.4	30.2	28.7	26.5	28.6
40	\$ 212	\$ 229	\$ 259	\$ 239	\$ 213	\$ 221	\$ 250	\$ 204
41	\$ 556	\$ 936	\$ 1 163	\$ 798	\$ 1 127	\$ 1 441	\$ 2 167	\$ 1 772
42	375	361	253	481	332	382	395	388
43	540	743	927	725	716	1 002	1 080	911
44	496	540	663	571	633	684	768	614
45	650	699	929	762	906	981	1 133	949
46	13.78	17.48	19.72	18.17	11.96	16.36	17.04	14.66
47	177	154	153	159	240	205	225	204
48	17.7	20.6	22.1	19.2	22.7	25.4	29.4	26.0
49	90	86	87	85	89	83	84	85
50	46	43	38	43	45	44	39	38
51	8	5	2	5	8	6	6	7
52	27	25	27	23	28	23	26	21
53	1	1	5	2	1	1	4	1
54	19	26	28	27	18	26	26	30
55	17	24	24	23	15	23	23	24
56	50.6	49.7	53.8	53.2	52.3	46.0	52.4	49.7
57	22.0	22.2	17.2	17.2	23.6	20.9	21.9	22.2
58	46.7	44.4	57.8	49.2	40.2	44.1	47.6	41.1
59	35.5	27.9	34.9	34.9	35.0	35.5	25.2	34.2
60	\$ 87.88	\$ 82.21	\$ 87.11	\$ 84.21	\$ 86.79	\$ 77.31	\$ 86.89	\$ 75.74
61	26.82	78.77	104.66	75.83	26.93	71.37	91.52	57.59

TABLE 8.—SUMMARY OF BUSINESS RECORDS ON SELECTED SIZE AND TYPE GROUPS OF FARMS IN THE LIVESTOCK AND GRAIN AREA, 1947 (CONCLUDED)

Items		340 acres or more			
		Grain farms	Hog farms	Beef cattle farms	Mixed livestock
Number of farms	1	43	54	28	14
Average size of farm	2	471	447	440	401
Soil rating on improved land	3	2.3	2.9	2.8	2.6
Inputs per farm:					
Land improvements	4	\$ 862	\$ 548	\$ 663	\$ 689
Buildings and fences	5	1 317	1 437	1 626	1 508
Machinery and power	6	4 360	4 531	4 572	3 804
Labor	7	4 742	4 793	5 100	4 517
Taxes	8	908	898	809	801
Miscellaneous	9	315	495	400	361
Capital charge	10	4 503	4 035	4 800	4 110
Total non-feed input	11	(17 007)	(16 737)	(17 970)	(15 790)
Feed fed to:					
Sheep	12	\$ 54	\$ 243	\$ 756	\$ 696
Poultry	13	429	473	394	676
Dairy cattle	14	516	693	454	736
Other cattle	15	3 275	6 909	18 378	6 893
Hogs	16	4 671	17 238	7 470	6 910
Total feed fed	17	(8 945)	(25 556)	(27 452)	(15 911)
Total farm inputs	18	25 952	42 293	45 422	31 701
Total inputs per acre	19	55.10	94.67	103.28	79.00
Returns per farm:					
AAA receipts	20	\$ 157	\$ 157	\$ 127	\$ 153
Buildings and miscellaneous	21	77	94	251	44
Labor and machinery	22	477	332	386	375
Crop returns	23	32 372	25 945	27 895	23 139
Returns from:					
Sheep	24	\$ 68	\$ 276	\$ 574	\$ 1 097
Poultry	25	442	536	447	1 719
Dairy cattle	26	889	1 178	576	1 251
Other cattle	27	4 951	9 904	25 763	10 084
Hogs	28	7 713	25 589	10 929	10 977
All livestock	29	(14 063)	(37 483)	(38 289)	(24 128)
Total farm returns	30	47 146	64 011	66 948	47 839
Net returns per farm	31	\$21 194	\$21 718	\$21 526	\$16 138
Net returns per \$100 non-feed input	32	124	130	120	102
Cash balance per farm	33	\$16 048	\$16 602	\$16 581	\$13 640
Inventory increase	34	11 516	10 952	11 632	8 338
Farm products consumed	35	540	603	577	638
Less unpaid labor	36	2 407	2 404	2 464	2 367
Net farm earnings	37	\$25 697	\$25 753	\$26 326	\$20 249
Net earnings per acre	38	54.57	57.65	59.86	50.50
Rate earned on investment, percent	39	28.5	31.9	27.4	24.6
Total investment per acre	40	\$ 191	\$ 181	\$ 218	\$ 205
Selected farm operating costs:					
Hired labor charge	41	\$ 2 335	\$ 2 388	\$ 2 635	\$ 2 149
Machinery hire	42	393	600	524	460
Machinery repairs and maintenance	43	1 336	1 399	1 439	1 059
Gasoline, fuel and oil	44	1 067	932	988	742
Machinery depreciation	45	1 224	1 177	1 224	1 086
Power and machinery cost per crop acre	46	11.91	16.42	16.04	13.54
Crop acres per farm	47	366	276.9	285	281
Months of labor per farm	48	31.8	31.9	33.1	29.4
Percent land area tillable	49	87	73	75	81
Percent tillable land in:					
Corn	50	41	41	39	43
Soybeans	51	14	6	5	7
Small grains	52	27	25	26	25
Grain silage	53	1	2	3	2
Hay and pasture	54	16	25	25	23
Biennial and perennial legumes	55	13	21	23	16
Crop yields per acre:					
Corn, bushels	56	46.0	44.7	49.7	40.9
Soybeans, bushels	57	22.5	19.2	21.0	19.3
Oats, bushels	58	44.8	45.2	49.6	44.0
Wheat, bushels	59	31.0	27.1	29.4	31.7
Crop returns per tillable acre	60	\$ 78.40	\$ 77.65	\$ 83.04	\$ 70.39
Feed fed per tillable acre	61	21.80	28.02	28.21	24.89

TABLE 9.—SUMMARY OF BUSINESS RECORDS ON SELECTED SIZE AND TYPE GROUPS OF FARMS IN THE GENERAL FARMING AREA, 1947

	Under 180 acres		180 to 259 acres		260 to 339 acres		340 acres or more	
		Hog farms	Grain farms	Hog farms	Grain farms	Hog farms	Grain farms	Hog farms
1		18	22	30	18	24	36	20
2		145	220	218	298	292	468	421
3		4.5	3.9	4.3	3.6	4.0	4.1	4.7
4	\$	249	\$ 326	\$ 385	\$ 521	\$ 372	\$ 724	\$ 667
5		440	554	761	658	681	942	586
6		1 951	2 503	2 637	3 070	3 111	4 312	3 928
7		2 709	2 569	3 028	2 982	3 761	4 596	4 169
8		315	409	367	504	478	781	629
9		314	223	329	179	370	390	427
10		1 208	1 841	1 803	2 419	2 446	3 505	2 994
11		(7 186)	(8 425)	(9 310)	(10 333)	(11 219)	(15 250)	(13 400)
12	\$	38	\$ 8	\$ 101	\$...	\$ 146	\$ 29	\$ 120
13		565	474	693	459	559	634	601
14		397	419	671	988	693	1 120	671
15		1 216	623	1 074	907	2 800	1 424	3 919
16		5 687	3 109	8 501	2 086	10 483	4 868	13 885
17		(7 903)	(4 633)	(11 040)	(4 440)	(14 681)	(8 075)	(19 196)
18		15 089	13 058	20 350	14 773	25 900	23 325	32 596
19		104.10	59.30	93.18	49.59	88.76	49.86	77.39
20	\$	83	\$ 82	\$ 83	\$ 135	\$ 94	\$ 187	\$ 206
21		24	34	53	137	76	95	76
22		198	368	298	342	368	478	312
23		7 839	13 335	11 966	17 828	14 797	26 366	18 231
24	\$	45	\$ 10	\$ 143	\$...	\$ 138	\$ 5	\$ 98
25		654	531	818	479	556	672	579
26		633	555	901	1 431	926	425	1 200
27		1 464	1 011	1 346	1 182	3 736	2 923	4 959
28		8 602	5 102	12 352	3 287	15 615	7 899	20 528
29		(11 398)	(7 209)	(15 560)	(6 379)	(20 971)	(11 924)	(27 364)
30		19 542	21 028	27 960	24 821	36 306	39 050	46 189
31	\$	4 453	\$ 7 970	\$ 7 610	\$10 048	\$10 406	\$15 725	\$13 593
32		62	95	82	97	93	103	101
33	\$	5 815	\$10 205	\$ 8 056	\$10 954	\$ 9 872	\$15 738	\$13 229
34		1 669	1 346	3 122	2 952	5 613	5 614	5 065
35		463	504	518	486	538	524	581
36		2 288	2 243	2 283	1 926	2 190	2 646	2 288
37	\$	5 659	\$ 9 812	\$ 9 413	\$12 466	\$12 853	\$19 230	\$16 587
38		39.05	44.56	43.10	41.85	44.05	41.11	39.38
39		23.4	26.6	26.1	25.8	26.3	27.4	27.7
40	\$	167	\$ 167	\$ 165	\$ 162	\$ 168	\$ 150	\$ 142
41	\$	422	\$ 326	\$ 746	\$ 1 057	\$ 1 571	\$ 1 950	\$ 1 881
42		227	219	391	434	471	515	328
43		496	691	744	917	846	1 384	1 258
44		319	499	456	667	576	948	776
45		535	620	693	729	792	1 129	1 042
46		20.32	14.64	18.19	13.41	17.19	12.53	17.77
47		96	171	145	229	181	344	221
48		18.8	17.7	20.7	20.6	25.5	30.2	27.8
49		81	88	79	86	74	85	67
50		39	34	37	36	36	33	32
51		12	28	16	21	21	24	11
52		21	21	24	28	19	24	24
53		1	..	..	..	2	..	1
54		26	16	23	15	22	15	26
55		21	8	17	9	17	10	21
56		36.2	39.1	40.2	42.1	40.7	42.5	39.8
57		20.1	20.1	17.2	20.8	17.4	19.2	18.3
58		25.0	37.8	34.7	26.1	33.4	34.6	34.3
59		28.2	25.3	24.2	26.3	23.1	23.4	23.7
60	\$	64.92	\$ 68.68	\$ 68.21	\$ 68.90	\$ 67.21	\$ 65.71	\$ 63.19
61		67.70	24.00	63.79	17.27	68.29	20.30	68.38

TABLE 10. — SUMMARY OF BUSINESS RECORDS BY SIZE OF FARM AND VALUE OF IMPROVED LAND IN FARMING-TYPE AREA 5, 1947^a

Item	Total acres per farm							
	60 to 140		141 to 220		221 to 300		301 or more	
Value per acre of improved land ^b	\$80 or less	\$81 or more	\$80 or less	\$81 or more	\$80 or less	\$81 or more	\$80 or less	\$81 or more
Number of farms.....	10	11	26	14	15	14	13	13
Acres per farm.....	121	121	183	178	250	258	386	400
Value of improved land per acre.....	\$ 60	\$ 109	\$ 104	\$ 114	\$ 62	\$ 98	\$ 65	\$ 104
Total investment per acre.....	123	185	121	193	131	174	104	138
Percent of land tillable.....	83	90	83	88	74	86	72	85
Percent of tillable land in:								
Corn.....	22.3	38.2	31.6	34.3	33.2	30.4	27.2	24.7
Oats.....	6.9	7.0	6.7	8.3	6.4	11.4	5.2	8.9
Wheat.....	10.0	7.5	8.1	8.6	6.8	5.6	11.2	8.2
Soybeans.....	21.4	31.2	24.9	24.9	26.6	31.0	25.9	31.0
Hay and pasture.....	36.1	14.9	27.3	22.2	26.6	16.9	26.2	21.4
Other crops.....	3.3	1.2	4.1	1.7	.4	4.7	4.3	5.8
Crop yields:								
Corn, bushels.....	33.1	40.4	30.2	40.5	36.7	37.5	36.3	35.0
Oats, bushels.....	19.2	22.2	27.8	33.6	27.9	38.0	27.9	33.4
Wheat, bushels.....	23.4	27.5	20.9	28.2	26.1	27.4	23.3	27.4
Soybeans, bushels.....	15.2	18.5	17.4	20.3	16.5	20.9	19.6	18.4
Expense factors:								
Total months of labor.....	13.1	15.2	18.5	19.1	25.0	22.4	29.9	29.5
Labor cost per crop acre.....	\$ 24.41	\$ 20.09	\$ 19.34	\$ 17.51	\$ 21.48	\$ 15.96	\$ 17.55	\$ 13.64
Power and machinery cost per crop acre.....	16.92	13.80	13.98	12.67	17.04	12.47	13.80	11.26
Land improvement cost per acre.....	1.70	2.30	1.77	2.29	2.12	2.51	1.66	2.23
Buildings cost per acre.....	2.06	2.16	1.53	1.95	1.96	1.79	1.14	1.26
Earnings:								
Cash balance.....	\$3 416	\$3 506	\$4 458	\$8 073	\$7 924	\$ 9 349	\$ 9 372	\$15 213
Inventory change.....	614	3 272	1 392	2 557	2 277	2 720	2 730	1 481
Farm products consumed.....	432	381	346	481	553	452	476	577
Less unpaid labor.....	1 644	1 926	1 882	1 637	2 444	1 753	2 455	2 055
Net farm earnings.....	\$2 798	\$ 5 233	\$4 449	\$9 339	\$8 310	\$10 768	\$10 123	\$15 216
Gross earnings per acre.....	\$ 58.91	\$ 77.99	\$ 53.52	\$ 86.01	\$ 64.65	\$ 72.36	\$ 49.24	\$ 62.94
Gross expense per acre.....	35.77	34.81	29.19	33.63	31.42	30.56	22.98	24.88
Net earnings per acre.....	\$ 23.14	\$ 43.18	\$ 24.33	\$ 52.38	\$ 33.23	\$ 41.80	\$ 26.26	\$ 38.06
Rate earned on investment, percent.....	18.8	23.4	20.2	27.1	25.4	24.1	25.2	24.1
Labor and management earnings.....	\$3 155	\$5 526	\$4 834	\$8 865	\$8 257	\$10 065	\$ 9 633	\$13 634

^a Includes only those counties in Area 5 not in an organized Farm Bureau Farm Management Service area.^b Value refers to inventory value of improved land and not market value.

TABLE 11. — SUMMARY OF BUSINESS RECORDS BY SIZE OF FARM AND VALUE OF IMPROVED LAND IN FARMING-TYPE AREA 6, 1947

Value per acre of improved land ^a	Item	Total acres per farm									
		60 to 140		141 to 220		221 to 300		301 or more		\$50 or less	\$51 or more
		\$50 or less	\$51 or more	\$50 or less	\$51 or more	\$50 or less	\$51 or more	\$50 or less	\$51 or more		
Value of farms.....	Number of farms.....	19	20	50	41	36	24	24	14		
	Acres per farm.....	118	113	180	181	264	250	398	364		
	Value of improved land per acre.....	\$ 40	\$ 71	\$ 70	\$ 70	\$ 42	\$ 69	\$ 37	\$ 67		
	Total investment per acre.....	96	152	93	131	85	113	72	108		
Percent of land tillable.....	Percent of land tillable.....	83	86	83	87	82	80	78	81		
	Percent of tillable land in:										
	Corn.....	21.4	30.9	20.0	26.7	17.9	24.4	16.3	23.4		
	Oats.....	5.8	2.9	5.0	4.7	5.4	5.4	5.5	5.0		
Hay and pasture.....	Wheat.....	18.3	23.7	19.9	24.2	23.5	22.6	20.0	23.0		
	Soybeans.....	13.8	8.2	12.9	13.3	16.4	13.3	17.0	17.0		
	Hay and pasture.....	34.9	32.9	36.4	27.1	28.7	28.8	29.9	22.2		
	Other crops.....	5.8	1.4	5.8	4.4	8.1	5.5	11.3	8.9		
Crop yields:	Corn, bushels.....	34.4	33.7	32.8	36.5	27.7	31.8	29.2	36.1		
	Oats, bushels.....	24.5	22.8	28.7	29.4	28.7	23.8	22.7	26.4		
	Wheat, bushels.....	23.5	26.0	22.8	24.3	21.7	23.0	21.9	24.3		
	Soybeans, bushels.....	16.2	12.9	14.5	16.4	14.2	15.5	12.6	15.7		
Expense factors:	Total months of labor.....	17.7	17.4	19.6	22.8	22.1	21.9	27.7	26.5		
	Labor cost per crop acre.....	\$ 28.79	\$ 24.92	\$ 21.35	\$ 20.80	\$ 16.08	\$ 18.39	\$ 14.54	\$ 13.80		
	Power and machinery cost per crop acre.....	14.97	20.59	14.05	13.91	12.09	13.54	12.10	12.30		
	Land improvement cost per acre.....	1.58	2.05	2.11	1.60	1.92	1.58	1.93	1.82		
Buildings cost per acre.....	Buildings cost per acre.....	1.84	2.63	1.43	1.62	1.07	1.23	.97	1.13		
	Earnings:										
	Cash balance.....	\$2 829	\$3 623	\$3 215	\$5 251	\$4 501	\$4 946	\$5 273	\$ 8 804		
	Inventory change.....	1 377	958	1 829	1 814	1 870	2 442	2 595	3 229		
Net farm earnings.....	Farm products consumed.....	372	496	437	520	482	612	629	704		
	Less unpaid labor.....	1 955	1 808	2 008	2 407	2 171	2 171	2 466	2 611		
	Net farm earnings.....	\$2 623	\$3 269	\$3 473	\$5 178	\$4 682	\$5 829	\$6 031	\$10 126		
Gross earnings per acre.....	Gross earnings per acre.....	\$ 54.16	\$ 72.21	\$ 48.08	\$ 59.29	\$ 40.59	\$ 49.90	\$ 35.62	\$ 49.91		
	Gross expense per acre.....	31.93	43.30	28.75	30.73	22.87	26.57	20.47	22.06		
	Net earnings per acre.....	\$ 22.23	\$ 28.91	\$ 19.33	\$ 28.56	\$ 17.72	\$ 23.33	\$ 15.15	\$ 27.85		
	Rate earned on investment, percent.....	23.1	19.0	20.8	21.9	20.9	20.7	20.9	25.8		
Labor and management earnings.....	Labor and management earnings.....	\$3 449	\$3 854	\$4 033	\$ 5 423	\$4 982	\$5 866	\$5 989	\$ 9 542		

^a Value refers to inventory value of improved land and not market value.

TABLE 12.—SUMMARY OF BUSINESS RECORDS BY SIZE OF FARM AND VALUE OF IMPROVED LAND IN FARMING-TYPE AREAS 7 AND 8, 1947

Item	Total acres per farm							
	60 to 140		141 to 220		221 to 300		301 or more	
Value per acre of improved land*	\$35 or less	\$36 or more	\$35 or less	\$36 or more	\$35 or less	\$36 or more	\$35 or less	\$36 or more
Number of farms.....	13	14	32	36	26	20	23	25
Acres per farm.....	110	110	183	181	253	259	413	386
Value of improved land per acre.....	\$ 27	\$ 53	\$ 30	\$ 54	\$ 29	\$ 89	\$ 25	\$ 48
Total investment per acre.....	61	111	66	97	56	89	52	80
Percent of land tillable.....	82	84	81	87	78	86	82	84
Percent of tillable land in:								
Corn.....	21.4	26.6	20.5	27.9	19.4	26.5	14.8	22.0
Oats.....	2.2	6.6	2.6	2.1	2.4	5.3	2.5	3.9
Wheat.....	8.7	13.7	15.1	15.6	12.2	16.0	15.3	17.2
Soybeans.....	6.7	6.0	11.8	14.0	14.8	14.6	17.3	16.5
Hay and pasture.....	49.7	39.1	43.4	34.4	44.6	32.2	38.6	33.4
Other crops.....	11.3	6.4	6.6	6.0	6.6	5.4	11.1	7.2
Crop yields:								
Corn, bushels.....	38.0	44.7	34.4	40.1	31.4	41.3	28.8	35.7
Oats, bushels.....	23.7	24.9	18.8	23.2	21.8	20.7	17.1	21.7
Wheat, bushels.....	20.5	19.6	16.3	19.9	19.1	17.6	18.7	17.4
Soybeans, bushels.....	11.1	16.2	15.3	18.2	11.5	17.7	12.2	14.9
Expense factors:								
Total months of labor.....	12.8	15.3	15.1	16.0	18.1	19.6	23.2	24.5
Labor cost per crop acre.....	\$ 23.93	\$ 24.14	\$ 16.39	\$ 15.27	\$ 15.45	\$ 14.50	\$ 11.96	\$ 11.42
Power and machinery cost per crop acre.....	16.21	15.28	12.41	10.78	11.70	11.07	10.98	9.30
Land improvement cost per acre.....	1.85	2.84	2.35	2.45	1.60	2.93	1.88	1.78
Buildings cost per acre.....	1.01	1.96	.74	.85	.73	1.11	.79	.69
Earnings:								
Cash balance.....	\$1 230	\$2 432	\$2 888	\$3 996	\$2 941	\$4 228	\$2 585	\$6 561
Inventory change.....	1 555	1 482	1 294	2 206	1 700	4 117	3 300	3 763
Farm products consumed.....	374	464	464	520	442	517	450	554
Less unpaid labor.....	1 405	1 472	1 567	1 575	1 860	1 876	1 994	2 141
Net farm earnings.....	\$1 754	\$2 904	\$3 079	\$5 147	\$3 223	\$6 986	\$4 341	\$8 737
Gross earnings per acre.....	\$ 42.53	\$ 53.41	\$ 37.53	\$ 50.74	\$ 29.59	\$ 47.58	\$ 26.46	\$ 38.96
Gross expense per acre.....	27.34	28.98	20.94	22.23	16.87	20.60	15.95	22.64
Net earnings per acre.....	\$ 15.19	\$ 24.43	\$ 16.59	\$ 28.51	\$ 12.72	\$ 26.98	\$ 10.51	\$ 22.64
Rate earned on investment, percent.....	24.8	22.0	25.2	29.4	22.5	30.2	20.3	28.3
Labor and management earnings.....	\$2 610	\$3 543	\$3 710	\$5 555	\$3 787	\$7 144	\$4 560	\$8 543

* Value refers to inventory value of improved land and not market value.

ANALYSIS OF LIVESTOCK ENTERPRISES ON FARM BUREAU FARM MANAGEMENT FARMS FOR 1947¹

Amounts of feed fed and livestock production data included in the following livestock enterprise analyses were taken from records of production and feed fed to individual classes of livestock kept by the cooperators in the Farm Bureau Farm Management Service. Minimum limits were placed on the size of enterprises included in these analyses (Tables 15, 16, 17 and 18). These limits were: five cows in breeding cattle enterprises, six litters of pigs farrowed, seven animal units of feeder cattle (one animal unit equals 1,000 pounds of feeder cattle), 100 hens, and three animal units of sheep (one animal unit equals five ewes or ten feeder lambs).

¹The data for livestock enterprise tables are from Farm Bureau Farm Management records, all of which are in the northern 58 counties of the state.

TABLE 13. — RETURNS PER \$100 FEED FED TO DIFFERENT CLASSES OF LIVESTOCK, DATA FROM ALL FARM BUREAU FARM MANAGEMENT SERVICE AREAS, 1933-1947^a

Year	Beef cow herds	Dairy cow herds	Dual purpose herds	Feeder cattle bought	Native sheep raised	Feeder sheep bought	Hogs	Poultry	Yearly price of corn
1933.....	\$ 90	\$152	\$112	\$ 97	\$...	\$...	\$128	\$217	\$.32
1934.....	84	145	118	125	...	...	127	198	.58
1935.....	110	143	141	152	93	163	174	211	.74
1936.....	85	150	109	96	109	101	155	180	.73
1937.....	99	159	116	106	123	50	122	157	.91
1938.....	119	193	151	142	98	153	184	208	.45
1939.....	146	204	162	131	136	136	144	195	.43
1940.....	134	198	173	136	142	149	118	177	.54
1941.....	136	212	162	124	160	122	193	202	.63
1942.....	127	176	151	136	131	147	201	187	.77
1943.....	108	160	118	105	93	108	136	169	.97
1944.....	94	166	120	107	88	136	125	140	1.07
1945.....	110	174	128	119	117	120	138	159	1.07
1946.....	130	183	148	135	138	194	154	141	1.39
1947.....	130	162	147	138	130	131	150	117	1.90
15-year average..	113	172	137	123	120 ^b	132 ^b	150	177	.83

^a When the value of feed fed during 1947 was calculated, the grain was priced at the average farm prices for Illinois, reported by the Illinois Cooperative Crop Reporting Service as follows: corn, \$1.90; oats, \$.97; barley, \$1.59; soybeans, \$3.28; rye, \$2.46; wheat, \$2.45. Purchased supplements were priced at cost, hay and silage at farm values in the area and pasture at 12 cents per pasture day.

^b Average of thirteen years only.

TABLE 14. — UNITED STATES LIVESTOCK-FEED PRICE RATIOS, 1926-1945 AVERAGE AND FOR THE YEARS 1942 THROUGH 1947^a

Ratios	1926-45 Average	1942	1943	1944	1945	1946	1947
Hog-corn.....	13.2 ^b	17.6	14.6	12.7	13.8	13.4	14.1
Butterfat-feed.....	24.7	24.4	24.8	24.5	27.5	26.8	21.9
Milk-feed.....	1.27	1.32	1.35	1.39	1.41	1.35	1.18
Egg-feed.....	12.7 ^c	14.2	14.5	11.5	13.4	11.3	11.1
Chicken-feed.....	8.5 ^c	8.5	9.1	8.2	8.9	7.7	6.5

^a Taken from Bureau of Agricultural Economics publications, USDA.

^b North Central States, 1927-1946 average.

^c Average of 1936-1945.

TABLE 15. — BREEDING CATTLE ENTERPRISES, 1947

Items	Dairy cattle	Dual purpose	Beef cows
Number of farms.....	562	84	224
Number of cows in herd.....	15.7	10.9	16.2
Number of milk cows.....	15.2	5.8	1.8
Percent of milk cows dry.....	18	21	...
Total animal units in herd.....	21.9	17.5	25.0
Value of feed fed to cattle.....	\$3 425	\$2 261	\$2 625
Total returns from cattle.....	5 564	3 328	3 418
Returns per \$100 feed fed.....	162	147	130
Total pounds of milk produced.....	116 330	32 135	11 000
Pounds of milk per milk cow.....	7 653	5 516	6 066
Pounds of B.F. per milk cow.....	301	214	...
Total pounds beef produced.....	7 403	9 521	12 370
Percent death loss by weight.....	9.4	4.8	4.9
Prices received			
Per 100 lbs. milk produced.....	\$ 3.81	\$ 3.53	\$ 3.27
Per 100 lbs. cattle sold.....	16.39	18.37	21.61
Feed cost per 1,000 lbs. milk or 100 lbs. beef ^a	\$17.99	\$17.76	\$19.49
Pounds feed per 100 lbs. beef ^a			
Grain.....	231	289	294
Protein and mineral feeds.....	42	18	17
Total concentrates.....	273	307	311
Hay.....	445	453	455
Silage.....	407	181	116
Pasture—pasture days.....	19.3	25.6	40.4
Pasture days per animal unit.....	167	185	218

^a This is the feed used to produce 100 lbs. of beef or 1,000 lbs. of milk.

TABLE 16. — HOG AND FEEDER CATTLE ENTERPRISES, 1947

Items	Hogs	Feeder cattle
Number of farms.....	895	321
Total value of feed fed.....	\$6 610	\$7 786
Returns from hogs or cattle.....	9 910	10 744
Returns per \$100 feed fed.....	150	138
Total animal units.....	...	35.8
Number of litters farrowed.....	26	...
Pigs weaned per litter.....	6.0	...
Pounds pork or beef produced.....	38 677	26 510
Percent death loss by weight.....	2.0	2.2
Price received per 100 lbs. sold.....	\$24.82	\$25.30
Feed cost per 100 lbs. produced.....	17.09	29.21
Pounds feed per 100 lbs. produced		
Grain.....	431	622
Protein and mineral feeds.....	41	50
Total concentrates.....	472	672
Hay.....	4.6	270
Silage.....	...	399
Pasture—pasture days.....	2.1	13.0

TABLE 17. — SHEEP ENTERPRISE, 1947

Items	Native flocks	Feeder sheep
Number of farms.....	151	49
Total feed fed to sheep.....	\$438	\$2 503
Total returns from sheep.....	570	3 277
Returns per \$100 feed.....	130	131
Total wool and mutton produced.....	2 873	10 860
Percent death loss by weight.....	13.4	17.8
Price received per 100 pounds sold.....	\$20.08	\$22.20
Feed charge per 100 pounds produced.....	15.24	23.05
<i>Pounds of feed per 100 lbs. produced:</i>		
Concentrates.....	152	514
Hay.....	451	290
Silage.....	20	5
Pasture—pasture days.....	54	23
Pasture days per animal unit.....	231	139

TABLE 18. — POULTRY ENTERPRISE, 1947

Items	Average of 822 farms
Total value of feed to poultry.....	\$1 101
Total returns from poultry.....	1 292
Returns per \$100 feed fed.....	117
Average number of hens.....	187
Eggs produced per hen.....	157
Percent of production.....	43
Pounds of feed per hen.....	158
Hens in Oct., Nov., and Dec.....	147
Percent of production in Oct., Nov., and Dec.....	41
Weight of poultry produced.....	1 912
Weight of poultry sold.....	1 238
Average price per pound sold.....	\$.25
Average price per dozen eggs sold.....	.44



Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	74	51	58
1933.....	66	51	57	94	67	68	75	69	54	69
1934.....	75	65	76	100	79	73	74	80	70	75
1935.....	80	79	102	101	89	86	85	86	80	87
1936.....	81	81	105	100	105	109	110	101	93	103
1937.....	86	86	118	104	111	116	112	107	111	113
1938.....	79	69	90	98	96	107	109	100	85	89
1939.....	77	65	84	97	99	107	110	107	100	109
1940.....	78	68	89	98	105	114	116	115	114	125
1941.....	87	82	112	103	140	146	140	138	168	162
1942.....	99	105	141	117	193	200	169	175	245	199
1943.....	103	123	165	127	244	241	190	216	334	239
1944.....	104	124	165	132	255	240	182	240	346	236
1945.....	106	128	171	136	270	248	182	248	293	203
1946.....	121	148	204	151	308	302	200	254	266	170
1947.....	152	181	265	181	378	386	213	281	324	187
1947 May.....	147	176	245	178	299	357	201	272	312	185
June.....	148	177	255	180	329	321	178	276	320	184
July.....	151	181	267	180	400	465	258	277	314	176
Aug.....	154	182	276	184	377	331	180	278	323	182
Sept.....	157	186	297	186	459	253	136	302	337	186
Oct.....	159	190	292	187	566	569	304	290	342	190
Nov.....	160	188	282	188	466	538	286	292	345	192
Dec.....	163	197	296	191	438	446	234	297	356	192
1948 Jan.....	166	199	310	196	385	434	221	297	350	193
Feb.....	161	185	263	194	276	289	149	296	354 ¹¹	194
Mar.....	161	186	272	193	295	304	158	296	358 ¹¹	192
Apr.....	163	187	278	195	308	328	168	295	347	188
May.....	164	189	276	195	311	...	...	296	346	192

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Aug. 1947	Current months, 1948		
	1935-39	1946	1947		June	July	August
Corn, bu.....	\$.66	\$1.39	\$1.90	\$2.22	\$2.18	\$2.01	\$1.91
Oats, bu.....	.31	.77	.97	.97	1.06	.82	.66
Wheat, bu.....	.86	1.83	2.45	2.23	2.17	2.10	2.04
Barley, bu.....	.62	1.29	1.59	1.50	1.80	1.40	1.25
Soybeans, bu.....	.90	2.30	3.28	3.08	4.00	3.69	3.05
Hogs, cwt.....	8.52	17.53	25.04	24.90	23.30	26.50	27.30
Beef cattle, cwt.....	7.88	16.41	20.62	23.00	28.60	29.00	27.20
Lambs, cwt.....	8.36	16.38	21.31	22.60	26.80	28.20	25.60
Milk cows, head.....	58.00	147.00	173.33	175.00	195.00	200.00	200.00
Veal calves, cwt.....	8.66	16.78	23.30	23.10	27.60	28.70	28.70
Sheep, cwt.....	3.58	6.99	7.39	7.70	9.50	9.50	9.50
Butterfat, lb.....	.27	.63	.69	.69	.76	.78	.74
Milk, cwt.....	1.68	3.80	4.00	3.90	4.10	4.45	4.65
Eggs, doz.....	.19	.34	.41	.39	.38	.38	.40
Chickens, lb.....	.15	.27	.27	.27	.31	.33	.34
Wool, lb.....	.25	.43	.40	.39	.43	.44	.44
Apples, bu.....	1.08	3.37	2.72	2.00	2.00	2.25	2.20
Hay, ton.....	9.39	15.55	16.87	15.00	19.10	19.70	18.70
Potatoes, bu.....	.91	1.70	1.91	2.30	2.00	2.20	2.00

¹² For sources of data in tables see preceding page.

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THE SEASONAL MOVEMENTS OF PRICES OF CORN AND OTHER FEEDSTUFFS

Seasonal price movements of feedstuffs are caused by the same factors that cause year to year changes in prices, i.e., supply and demand. However, the cycle of the seasons causes the supply to fluctuate somewhat regularly from month to month throughout the season and it also causes some changes in demand because of the presence or absence of substitute feeds, especially pastures.

Changes in demand resulting from changes in prices of livestock and livestock products, which changes are based on consumers' (domestic and foreign) ability and willingness to buy, affect prices of feedstuffs at the same time that seasonal changes in supply affect them. The changes in consumer demand for meats or other livestock products may cause changes in prices in the same or opposite directions to those expected on the basis of seasonal changes in supply. Farmers and dealers may find that a declining demand may cause a loss from storage operations even when the feedstuffs are purchased at the seasonal low points indicated in the following charts and tables. If a decline in demand is anticipated, hand-to-mouth buying is obviously indicated. If the demand is increasing it may pay to buy before the usual seasonal low point is reached in cases of some commodities where the normal seasonal variation is small.

For most of the commodities studied the seasonal high does not get much above 105 percent, nor the seasonal low much below 95 percent of the season's average price. That means that the influence of changes in demand are likely to have a far greater effect on month to month changes

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

in prices than is the influence of the usual seasonal forces. The tables and charts show that the lowest prices tend to prevail during the months of greatest output of the product or the crop from which the product is obtained. In some cases the demand for the product tends to decline as pastures become freely available in the spring. Pasture is substituted for concentrates.

The seasonal price movements of certain feedstuffs tabulated in Table 1 and charted in Figure 1 represent general tendencies only. They were calculated for the pre-World War period, 1931-1941. Probably in no single year did prices for any product correspond with the seasonal index given below. The prewar period was used in order to eliminate the effects of government controls of prices during World War II. But the period used was characterized by severe depression and recovery on the demand side and serious drouths on the supply side. An attempt was made to eliminate the influences of very unusual developments affecting demand and supply by the methods used in arriving at the indexes.

TABLE 1. — INDEXES OF SEASONAL PRICE TENDENCIES OF SELECTED FEEDSTUFFS, U. S., 1931 to 1941¹

(Average of 12 months = 100)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
CORN—No. 3 yellow, Chicago.....	100	98	98	101	103	103	106	103	102	93	95	97
OATS—No. 3 white, Chicago.....	106	105	104	105	102	100	94	90	96	94	100	103
BRAN—Standard, Spring wheat, Chicago.....	103	102	109	117	108	96	94	92	92	91	98	100
MIDDLINGS—Stand- ard spring wheat, Chicago.....	99	94	101	108	107	105	105	97	96	92	98	98
SOYBEAN MEAL— Chicago, 41% protein	104	98	97	98	100	99	99	102	104	96	100	103
COTTONSEED MEAL—Memphis, 41% protein.....	102	99	99	101	100	97	105	103	96	94	101	102
LINSEED MEAL— Minneapolis, 37% protein.....	106	102	99	101	99	96	96	97	98	99	101	105
ALFALFA MEAL— Kansas City, No. 1 fine.....	103	102	102	100	98	96	94	97	101	101	103	103
TANKAGE, digester, Chicago, 60% protein	107	103	100	98	97	95	99	99	101	99	100	103
MEAT SCRAPS, Chicago.....	108	103	99	97	94	92	98	99	103	102	101	102

¹ Source of price quotations—Feed Statistics, Supplement to the Feed Situation, October 1946, Bureau of Agricultural Economics, United States Department of Agriculture. Because data were not available beginning with 1931 the following deviations were made: alfalfa meal and meat scraps, 1935-1941. The link relative method was used.

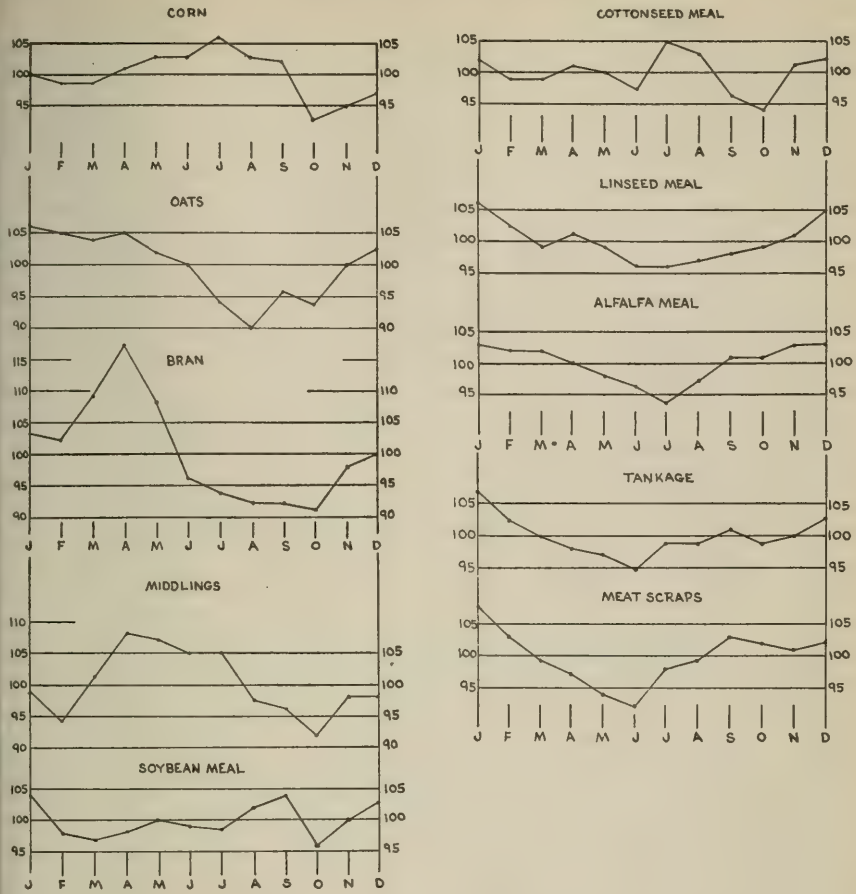


FIG. 1.— SEASONAL PRICE TENDENCIES OF SELECTED FEEDSTUFFS, U. S., 1931-1941
(Average of 12 months = 100)

Deviations From the Seasonal Pattern

Professor Working of this institution and other agricultural economists have described the effects of changes in size of the corn crop and changes in livestock numbers, especially hog numbers, on the December to May price spread for corn. With a normal crop of corn and no significant changes in hog numbers, there is typically a rise in prices of corn from December to May, assuming no change in general demand. If the corn crop is very much larger than the average of recent years the rise in prices from December to May is likely to be more than normal. If there is a very short corn crop the December to May rise is likely to be

smaller than normal. If hog numbers are increasing, this fact strengthens the May price relative to the December price, but if hog numbers are declining the opposite tends to be true.

The reasons for this behavior of prices are obvious. When there is a bumper crop, as there is this year, except for the influence of government price supports the December price of corn tends to be quite low. Everyone knows that there is a bumper crop and the future markets reflect this knowledge on the part of both buyers and sellers. But cheap corn means higher profits from feeding so disappearance is very heavy — hogs, dairy cows, beef cattle, and chickens are all fed generously. By May the supply does not appear to be so burdensome as expected and prices are probably considerably higher than in December. If the crop was short, this fact was known also and the price rose in December. Then corn prices are high and feeding is less profitable than under normal conditions so farmers economize on the use of corn. As one person put it, "they feed with a spoon instead of a shovel." So by May the supply is not so short as anticipated and the normal price rise has not occurred. All this assumes no change in consumer or export demand which was not anticipated in December.

Anticipating Changes in Demand

There are numerous powerful forces, in addition to size of crop and numbers of livestock, which affect price movements of feedstuffs. The farmer does not have enough information available to make it possible for him to judge the strength of such forces, particularly when some of them are operating in opposite directions. The author discovered a method whereby price movements in the preceding three months helped to anticipate rises and declines in corn prices during the prewar period 1931-41 fairly well.

According to the seasonal index of corn price movements in Table 1 the low price of No. 3 yellow corn at Chicago might be expected in October. But sometimes the low price was in November, sometimes in December, and sometimes in later months of the crop year. The question to be answered is: "Is the lowest price likely to come in October this year; if not, will it be in November?" In Table 1 it will be observed that the June index is 103 percent of the season's average price and that the September index is 102. A decline of one percent during the three months prior to October is to be expected. If the actual decline from June (average price) to September (average price) exceeds one percent by as much as three to five percentage points it would suggest a declining demand and no hurry to buy corn for storage purposes for feeding later in the year. That was the situation from June to September in 1948. If there

was an actual rise or no decline from June to September it would suggest laying in your full year's supply of corn in October, or contracting for it at October prices.

If you need corn and do not buy it in October you have to decide whether to buy it in November. The usual seasonal price decline for the three months prior to November, that is, from July to October, is 13 percent — from 106 to 93. If actual prices decline substantially more than 13 percent during these three months, it would suggest a further deferment of purchases. The July average price of No. 3 yellow corn at Chicago was \$2.13¾ this year. The October average price was substantially less than \$1.80 to \$1.85 so a further deferment of purchases until December would be suggested. On October 23 old crop No. 3 yellow corn sold for \$1.49 in Chicago and new crop corn sold for \$1.40.

Usually if the above indicator does not call for a purchase in October or November, hand-to-mouth buying for the rest of the crop year is indicated. However, this year the combination of a new record high in corn production and increasing hog numbers would suggest a more than usual seasonal rise in prices of corn from December to May. Probable congestion in December and the possibility of heavy exports later also suggest a December to May rise. So the risk would be small this year in purchasing the full year's supply of corn in December. If the December price is not above the loan price a farmer-feeder is practically guaranteed against a decline in price on December purchases of good sound corn this year, and there is a possibility of a rise in price. The fact that the August to November decline will probably far exceed 10 percent suggests that the December to May rise is not likely to be large unless we get into another war.

G. L. JORDAN

MARKETING COSTS IN SELLING FEEDER CATTLE¹

An analysis was made of 40 truck lots of feeder cattle sold at the National Stockyards in the fall of 1947.

Factors Included in Marketing Costs

In this study marketing costs are the difference between selling price and net return to the farmer. Transportation expense from farm to market was the largest item, 54.1 cents out of every dollar spent on marketing. An additional 5.8 cents was spent for "in transit" insurance from the farm to market, making the cost of moving livestock to market nearly

¹ This material was developed in conjunction with Project 473 under the direction of R. C. Ashby, Professor of Livestock Marketing.

60 cents out of every dollar of cost. Commission charges were 18.6 cents, the yardage charges were 13.7 cents, feed costs were 7.2 cents and miscellaneous charges were .6 cents of the marketing cost dollar.

Transportation charges and "in transit" insurance vary with weight and distance from market; but the other items are on a flat per head basis.

How Important Are Marketing Costs?

Another way of measuring marketing costs is per \$1.00 of sales value. This amounted to 4.8 cents for calves weighing under 400 pounds, 4.1 cents for 400-699 pound cattle, and 3 cents for cattle over 700 pounds.

Those cattle netting the farmer less than 14 cents a pound cost 5.1 cents out of each sales dollar; those selling from 14-16 cents cost 4.7 cents; 16-17.5 cents cost 4.1 cents, and those netting over 17.5 cents cost 3.2 cents.

Thus, in the first comparison using weight as a basis the farmers producing heavy feeder cattle had 37.5 percent less marketing costs per dollar gross return than those producing calves. This was partly due to decreased marketing costs amounting to 26.7 percent, but the heavier cattle sold for 14.4 percent more. This higher selling price was due not only to a possible difference in quality, but the heavier cattle were two-way cattle that could either go back to the country for more finish or be sold for slaughter.

In the second comparison using per pound prices there was a saving of 37.2 percent in marketing costs per dollar for those sold at over 17.5 cents compared with those selling for less than 14 cents. This is represented by a 16.5 percent decrease in marketing costs and an increase in selling price of 25.4 percent.

What Can Farmers Do About Marketing Costs?

Transportation is the biggest single item of cost — most truck rates are cheaper on full loads than part loads; but since many farmers produce less than truck load lots this item is beyond their control. The average transportation charge for those shipping 5 head or less was 50 cents per hundred; 6-9 head, 51 cents; 10 head and over, 35 cents.

Since the other charges are on a per-head basis, the farmer can have less expenses per dollar gross return by making each head sold more valuable. This can be done by three means: (1) plan the marketing program to avoid seasonal lows; (2) produce higher quality livestock that will command a higher price per pound, and (3) feed livestock to the weight that will give maximum net market returns.

No attempt was made in this study to determine shrink which is a factor in selling livestock.

Some farmers feel they can do a better job of selling at home to local traders. Many of these traders will in turn sell the livestock at the same market the farmer would have sold. They will have the same marketing expenses to pay as the farmer and they must have a profit which would be added to marketing margin. A thorough knowledge of current market conditions is essential for a person to do his own marketing job efficiently. Keeping posted on the market condition is a full-time job.

W. J. WILLS

PRINCIPLES FOR PRICING MARKET MILK¹

The principal objective of a university is to assemble, discover, and disseminate truths which will be most useful in improving the standards of living of the people whom it serves. Hence, in setting down principles for pricing of market milk, the first question which a university researcher may logically raise is: *Is the proposed pricing policy in line with public interest?* Does it tend to encourage the maintenance and expansion of sales of market milk in line with nutritional needs? Does it tend to promote harmony between producers and dealers and to put a stop to milk strikes which in the past have been costly to all groups?

A second question: *Is the proposed pricing policy fair to the various interests involved?* Is it fair to farmers? Is it fair to dealers? Is it fair to labor?

A third question: *Is the proposed pricing policy workable?* A large number of proposals for policy changes are impractical because for one reason or another they would not be accepted by the groups affected. Eventual acceptance by both producers and dealers is essential to the practical operation of any milk pricing policy.

Before setting down specific principles dealing with the pricing of market milk, let us review certain facts which directly or indirectly are pertinent to this problem:

1. Of the 120 billion pounds of milk produced annually in the United States, about 50 percent is used for market milk and cream while the other 50 percent is manufactured.

2. Per capita consumption of milk (and cream) increased from 160 quarts annually in 1940 to 201 quarts in 1945, and then decreased to 185 quarts per person in 1947, according to the United States Department of Agriculture. The present consumption of milk is still too low in relation to nutritional needs, particularly for low-income people. The 25-quart

¹ Paper presented at the conference of Federal Milk Market Administrators, Commodore Hotel, New York City, May 20, 1948.

net increase in milk used is being consumed by many people who are price sensitive and will be quick to reduce milk purchases with a decline in nonagricultural income unless at the same time retail milk prices are reduced materially.

3. Careful studies have shown that people drink more milk when it is cheap than when it is expensive. We are about to release a study in our next issue of *Illinois Farm Economics* which analyzes the effect that prices and consumer income have had upon per capita sales of milk in the United States from 1930 to 1947. This also includes a summary of Blanford's study of 4,508 stores in New York City in 1938 and Lee's study of per capita milk consumption of some 1,300 consumers in Champaign-Urbana for 1933 to 1938.

4. Milk used in whole form usually returns more dollars per unit than manufactured milk. Hence, it is to the enlightened self-interest of dairy farmers of America to maintain sales of market milk at a high level.

5. The acceptance of federal milk orders by both dealers and farmers, particularly during the past eight years, has been due in large part to the high degree of flexibility in keeping the price of Class I market milk in line with prices of milk in other uses, and with prices of competing farm products.

6. If history repeats itself, all farm prices, including milk prices, will fall within the next few years.

7. Shipments of milk during World War II proved conclusively that, if properly handled, high-quality milk can be set down in good condition in markets located long distances from where the milk was produced. The question of inter-market shipments is thus not a question of quality, but a question of how the price in any particular area compares with price plus transport costs from some other area.

Keeping in mind the above facts, the following principles are suggested as a basis for determining the price of market milk used in whole form:

1. *Both milk and cream for any market should be produced in areas where costs of getting milk produced plus transport costs are the lowest.* If Minnesota farmers can produce high-quality milk and transport it to Florida or Texas cheaper than it can be produced in these states, it should be produced in Minnesota. From a public viewpoint, consumers are interested in getting high-quality products at reasonable prices. Furthermore, an underlying basis for the high standards of living in the United States has been the application of the "law of comparative advantage," wherein goods are produced in low-cost areas. Michigan and New York produce large quantities of apples, but no oranges; most of our oranges

are produced in California and Florida, where the natural advantage of climate results in low-cost orange production.

The corn-belt states produce the bulk of concentrated feedstuffs used in both the midwestern and eastern states. For years my father bought rations for feeding dairy cattle on his Vermont farm which were mixed in Buffalo, but most of the ingredients originated in the midwest areas. His Vermont farm could economically produce enough pasture and hay, but it was cheaper for him to buy most of his concentrates than to produce them. Milk producers located in eastern milksheds have a natural advantage of location as compared with milk producers located in the surplus-producing areas of the midwest. There are, however, definite limits to this natural advantage, particularly in the sale of cream.

Cream can be shipped long distances at relatively low costs. Costs for hauling cream are about one-tenth of those for hauling market milk. Much cream is still being separated from market milk in several eastern markets. In New York City, for example, a major part of the cream used is obtained from milk produced in the New York milkshed. As a long-time program, it is good economics for eastern markets to use as market milk as large a proportion of its total production as possible and to make up shortages with shipments of cream from the surplus producing areas of the midwest. In some markets this will necessitate shifting of some producers from one milkshed to another or working out some method for intermarket shipments of milk.

2. *The price for market milk (Class I) should be established in a federal order so that it automatically goes up or down in line with some dynamic factor, such as prices of manufactured dairy products, consumers' income, other farm prices, or some combination of these price series.* During World War I there was an epidemic of milk strikes throughout the country accompanied by physical violence, dumping of milk, and much bitterness between milk dealers and dairy farmers over the question of pricing of milk. In sharp contrast to this situation, during the past eight years most markets have had no milk strikes and, for the most part, producers and dealers have worked together to use the milk produced in the best way possible to meet a shortage of this important product. Why this difference?

This situation can be attributed primarily to three things: First, to the nation-wide acceptance of collective bargaining¹ between dairy farmers and milk dealers in setting the wholesale price of milk; second, to the operation of federal milk orders in some 30 markets with their "rules of the game" and their "umpire" job whereby milk prices of *all* dealers

¹ Made possible legally by the passage of the Capper-Volstead Act of 1922.

in most of these markets have been geared to change automatically with changes in prices of manufactured dairy products or other dynamic factors; and third, to the fact that the general level of milk prices has been rising during most of the 14-year period in which federal orders have been operating. The Class I price to farmers under the Chicago Federal Order rose automatically from \$1.99 per 100 pounds of 3.5 percent milk in September 1939, when the order was initiated, to \$5.25 in November 1946, the month of highest prices. Acceptance of rising prices by producers was natural. Dealers accepted price increases because they were in line with those of manufactured dairy products, consumer income, and prices of other farm products. They recognized the fact that they couldn't get milk to supply their needs unless they paid these prices.

The whole federal order program, however, is still on probation. Its acid test will come when milk prices fall sharply. Will farmers generally accept such price declines under federal order? In previous periods dealers have been the scapegoats. In our next period, the government will be the scapegoat. Survival during this period will depend upon vigorous support by the leadership of farm cooperatives, milk dealers, and our educational institutions.

3. *The price for market milk (Class I) should be established at premiums above prices of manufactured dairy products sufficiently high to get a blend price which will encourage enough but not too much milk to meet market needs. Bottom prices of manufactured dairy products should be kept as high as practical to prevent Class I prices being too high, and to prevent dealers who handle a large volume of surplus milk from having an unfair advantage over dealers whose purchases are largely for Class I sales. A monthly average of around 20 percent above Class I requirements is necessary to meet day-to-day changes in production and sales.*

Farmers change production of milk in response to a change in the net blend price, not the Class I price. From 1921 to 1946, the net blend price for 3.7 percent milk in the country plant zone averaged \$2.41 per 100 pounds for Boston producers and \$2.35 for Chicago producers.¹

The amount of Class I premium above prices of manufactured dairy products will tend to vary in different areas. Usually the premium in a so-called deficit area will average higher than in a surplus producing area. In 1947, the Chicago country zone premium for Class I milk above the midwest condensery price averaged 67 cents per 100 pounds compared with \$1.42 for Boston and \$1.43 for New York.

4. Since it is uneconomical to produce large quantities of Grade A or other high-priced milk to be manufactured into lower priced surplus

¹ Exclusive of government subsidy.

products, premiums paid for Class I milk above prices for manufactured dairy products:

(a) *Should be larger in months of low production and smaller in months of high production to encourage an annual production more nearly in line with a market's need for milk, and*

(b) *Should be raised on an annual basis if there is too little milk to meet whole milk requirements, and lowered if the blend price results in too much milk in the shortage months to meet whole milk requirements.*

Under the Chicago Federal Order, premiums for Class I milk for May and June are 50 cents per 100 pounds; from August to November, 90 cents; and for the other months, 70 cents per 100 pounds above the prices paid to condensery producers (or other basic formula price) in this area.

R. W. BARTLETT

This article contains the first part of the material which will appear in a publication to be known as the "Illinois Farm Drainage Law Manual." The portion which has not been printed deals with drainage district laws. This article is divided into two parts and covers two main subjects: Part I, The rules of natural drainage in Illinois, and Part II, Statutory enlargement of the rules of natural drainage. Part II will follow in a subsequent issue. The article is printed at this time because there is widespread interest throughout the state in drainage problems, and because there is no printed source of information about the drainage laws of the state for farm readers.

Editor.

ILLINOIS FARM DRAINAGE LAW MANUAL

Part I

This manual represents an attempt to clarify the drainage law of Illinois so that those who are intimately concerned with it, and who themselves are not versed or trained in law can increase their understanding. It is not a perfect explanation, and quite likely not even a correct one in all respects. But it was written with care after a study of the drainage acts and the best available interpretations of them, and after reviewing Illinois Supreme and Appellate court decisions in which rules of natural drainage are discussed. Although this manual is intended only to inform — not reform — the writer feels compelled to state that the drainage laws of Illinois are among, if not, the most unworkable and unwieldy of those of any of the forty-eight states. No one willed it that way, but an unfortunate beginning was made when two completely distinct acts were

passed, each containing provisions for several kinds of districts. Added to this is the meticulous process through which the law has attempted to balance the rights of the property owner on the one hand and the authority of the district to make assessments on the other. The writer does not feel that vested interests in the legal profession or elsewhere have been responsible for the perpetuation and extension of such a cumbersome and costly system, but that rather it continues because of the magnitude and complexity of the task of writing a new law which will cure all the defects of the old and at the same time give adequate protection to interests created under the old.

The Illinois Legislative Council, the Illinois State Bar Association and certain other organizations have been and are currently concerned with the improvement of Illinois drainage laws. It is possible that within a few years much needed and appropriate legislation will be enacted. Until that time it behooves drainage lawyers and engineers, drainage commissioners and farm owners to study, understand, and make the most efficient and practical application of the present law.

In 1930 the United States Bureau of the Census reported that one-third of all Illinois farms have artificial drainage of some kind. There are more than 1,500 drainage districts in Illinois, covering approximately 5½ million acres or nearly one-fifth of the total farm land in the state. Another four million acres have been drained by private enterprise. Much of the farm land both within and without districts would be seriously diminished in value if the excess water which falls upon it and which comes to it from surrounding lands could not be legally drained off or diverted.

Although many people are in their professional capacities concerned with farm drainage — lawyers, engineers, highway officials and others — this manual has been prepared to serve two important groups, the owners of farm land and drainage commissioners. Its purpose is twofold; to increase the general knowledge of drainage law and its application and to make possible a more ready recognition of the legal implications in drainage situations so that competent legal service can be procured in what might be termed the working stage of the particular situation as distinguished from the controversial stage. It is not intended as a handbook on organization and procedure — the basic law and competent legal service have been and will continue to be indispensable in that respect. Since no single state agency is charged with the general guidance or supervision of drainage districts, the Agricultural College would appear to be at least as appropriate an agency as any other for the preparation and distribution of an informative manual.

Rules of Natural Drainage in Illinois

A. General Remarks.

The so-called principles of natural drainage adhered to by the courts in Illinois apply to all farm lands, regardless of their location within or without a drainage district. However, the drainage works installed in a particular district may make one or more of these rules inapplicable to particular lands: Sometimes the inapplicability is obvious; sometimes it is a question of fact; sometimes it is a legal issue.

According to some writers there are three distinct concepts of drainage in the United States, expressed in three rules: the "common enemy" rule, the civil law rule, and the reasonable use rule.

In terms of a land owner's right to deal with surface water coming on to his land, the first rule gives him an unrestricted privilege, the civil law rule a privilege limited by natural drainage conditions and the latter rule a privilege depending upon the degree of his need and the amount of damage which his neighbors would suffer as a result of ditching, tiling, or other operations on his own land. Actually the courts which follow the "common enemy" concept have developed many limitations on the right to dispose of surface waters, the courts which follow the civil law rule have expanded the owners' rights in the use of natural drains, and courts following the reasonable use rule may arrive at conclusions just as unreasonable as any arrived at by courts which profess either of the other rules. It is perhaps accurate to say that the present soundness and usability of the drainage doctrine in a particular state depend at least as much on the insight and wisdom of key personnel on the bench and in the legal profession as on any rule which might have been adopted.

Illinois and two adjoining states — Iowa and Kentucky — follow the civil law approach: The other three states adjoining Illinois — Missouri, Wisconsin, and Indiana — follow the common enemy rule. The civil law rule was adopted by the Illinois Supreme Court prior to the enactment of drainage legislation. The feeling of the court is well expressed in the Case of Gormley v. Sanford, (1869) 52 Illinois 158, at page 162, "As water must flow, and some rule in regard to it must be established where land is held under the artificial titles created by human law, there can clearly be no other rule at once so equitable and so easy of application as that which enforces natural laws. There is no surprise or hardship in this, for each successive owner takes with whatever advantages or inconveniences nature has stamped upon his land." With this as a premise the Illinois courts have considered hundreds of drainage disputes during the past eighty years, and from their decisions have emerged certain interpretations and modifications of the rule. The sections which follow

will state as precisely as possible what these interpretations or modifications are.

B. The lower or servient owner's duty to receive surface water.

The first and most important principle of drainage law in Illinois is that the owner of the servient tenement is bound to receive the surface water naturally flowing to his land from higher land through natural depressions or swales. This means that a railroad or highway embankment must be constructed with sufficient openings to care for water that naturally flows across the right of way in a state of nature. It also means that unless a city has adopted a system of artificial drainage the owner of a lot which is lower than an adjoining lot must receive or arrange for the drainage of water coming from the higher lot. One qualification appearing in the rule needs to be pointed out, namely, that the surface water must drain off in a natural depression or channel: A landowner is under no duty to receive mere diffused water flowing on to his land. The courts have said, however, that an owner's right to natural drainage is the same whether the water flows in a water course or in a regular channel at certain times only. If the law had stopped here and had limited the right of the owner of the dominant heritage to drain his land just as it had been drained in a state of nature, and had restricted the duty of the lower owner to receiving only such waters as would have come to him in a state of nature, allowing him to dam against any artificial increase, but little real advantage would have resulted, since the cultivation and improvement of land necessarily makes changes in the amount and velocity of the water drained off.

C. Right of upper owner to collect, discharge, and accelerate the flow of surface waters.

The next question that arose in the courts was as to the right of the dominant owner to collect the surface water on his land and discharge it upon the land of the servient owner. A man had a pond in his farm and proposed to cut through the rim of the pond and let the water flow off through natural channels on to lower land. The lower landowner sought to enjoin this. The court held, that in the interest of good husbandry the owner of higher land could drain his ponds or collect surface water that naturally would fall in pools and hasten its flow by digging artificial ditches provided the water was discharged on the land of the lower owner at the place, where in a state of nature it would have flowed if the pond or pools had been filled with dirt and the water forced out into natural channels of drainage. This means that all lands lying within a natural basin may be drained into the water course (whether a stream or a mere depression) which drains that basin; and the lower landowners cannot

object that the amount of flowage is increased by artificial ditches or by tile lines constructed by the dominant owner on his own land so long as the artificial ditches drain only the natural basin, and so long as the water enters lower land at the same point it would have entered in a state of nature. The courts have also held that the substitution of tile for surface drainage does not amount to an abandonment by the owner of his natural drainage rights. This sensible extension of the earlier rule gives the upper owner increased rights of drainage, irrespective of statute. The only limitation on hastening the flow by such artificial channels is that they must all drain one natural basin. The upper owner cannot cut through a watershed ridge and drain on to lower land water which in a state of nature never could have reached it.

It seems clear then that by common law in this State, the servient owner (including highway authorities and railroad companies as well as private property owners) is under a legal duty to receive all waters coming from higher land through natural channels and that the upper owner has a legal right, in the interests of good husbandry, to accelerate the flow in such natural channels by tiling or by digging artificial ditches on his own land to carry off the water more quickly, provided that he does not cut through a natural divide and divert water on to the lower land that never could have reached it in a state of nature, but, on the contrary, would have drained elsewhere. It would seem that this right is not qualified by the fact that the acceleration by the upper owner actually injures the lower owner by washing his land or in other ways.

In one instance the natural course of drainage through defendant's land was in the form of an "ox-bow loop." The water entered defendant's land in times of rain from a rocky gorge and carried sand and debris which were deposited on his land in the long meander around the loop. The defendant proposed to cut a ditch straight through the loop and discharge the water on the right of way of a railroad at the same point where the loop had discharged the water; but the effect of the short cut was to accelerate greatly the velocity of the flow against the plaintiff's railroad embankment and also to cast sand and debris on it. The court held that the actual damage occasioned the railroad was no ground for an injunction.

Although there appears to be no Illinois decisions considering the question, it is probable that this right to accelerate the flow by artificial ditches on the dominant tenement is limited to the requirements of good husbandry. If done wantonly, with the purpose of injuring the lower owner, then it is possible that by analogy to the spite-wall and spite-fence cases a court of equity would enjoin the acts of the dominant owner.

D. Right to drain into watercourses.

There is another right of natural drainage similar to those which have been considered: Not only can the owner of the dominant land drain his land into natural depressions, but he can also drain his land, within a natural basin, into a natural watercourse flowing through his land. As a practical matter the right to do this is not often questioned, because draining into a creek which has ample banks does no actual harm. But even though actual damage results to the lower proprietors, as long as the upper owner cuts through no natural divide, but simply hastens the flow from the basin into the creek which drains it, he is within his legal rights.

The overflow water from a creek or small stream are surface waters within the meaning of this rule. Servient land is bound to receive and care for such overflow water but it is probable that neither a lower, upper, or adjacent owner is bound to receive the increased flood waters which might result if a riparian owner built a levee on his side of a stream forming a boundary between his land and that of an adjoining owner. However, a riparian owner does have a right to improve stream banks.

E. Obstructing the flow of surface water.

Under the civil law rule as it is applied in Illinois, a lower owner obviously has no right to erect a dam, levee or other artificial structure which will interfere with the passage of streams or surface water flowing from higher land through natural depressions. On the other hand an accumulation of natural obstructions such as shrubs, weeds, brushwood, corn stalks or other crop residues may impair the natural drainage of an upper owner without creating any right against the lower owner to have such impediments removed. Inability to make others remedy such a situation is one of the reasons for drainage districts. Of course owners may, and many times do, cooperate with each other, either informally or through mutually binding agreements. Whether an agreement or contract altering the natural drainage on farm land is binding depends upon the sufficiency of the agreement, whether it is in writing, or if not in writing, whether one party has acted upon it. When a farm on which artificial drains have been constructed is sold to several separate owners, mutual easements are created.

F. Easements of drainage and obstruction.

When a landowner is harmed by another owner and fails to enforce his rights, the harmful practice may itself become a right. For example, if an upper owner failed to take action when a lower owner dammed or obstructed the flow of surface water, the lower owner may acquire a right to maintain the dam through what is known as a prescriptive,

adverse, or long continued use. The period recognized in Illinois is 20 years. Likewise a lower owner may acquire a right to have no surface water drain on to his land from an upper owner, where the water has been diverted from his land for the prescriptive period. Through this same process an upper owner may acquire a right to change the place of entry of his surface water on the land of a lower owner, or to maintain other artificial conditions not permitted under the rules of natural drainage. Whether or not such a right has been acquired by an owner is a mixed question of fact and law and is not easily determined. Also it should be pointed out that any right of drainage acquired in such manner may be less desirable than a natural channel because in theory the holder of an easement is limited strictly to the benefits he had while acquiring the easement, whereas a natural depression or channel may be materially improved within the interpretation which Illinois courts have placed on the civil law rule.

G. Summary.

The position of an Illinois landowner with respect to "natural" drainage rules may be summarized briefly under two heads:

- (1) What can he do on his own land to improve his drainage?
- (2) What must he refrain from doing to lands that surround him?

What can he do on his own land to improve his drainage?

1. Widen, deepen, and clean out natural depressions that carry his surface waters.

2. Straighten out channels on his own property and accelerate the movement of surface water, so long as he does not change the point of natural entry on lower land.

3. Drain ponds or standing water in the direction that they naturally overflow.

4. Tile his own property to expedite the escape of water so long as he does not change the point of entry on lower land, bring in water from another watershed or connect his tile to lower tile without consent.

5. Fill up low places and force water out into natural drainage channels.

6. Expedite the flow of surface waters through natural lines of drainage, either by open or closed drains, into a watercourse or stream.

7. Construct grass waterways, check dams, terraces, or other soil conservation structures, so long as his drainage waters still come within the rules explained above and in the following section.

8. Public highway authorities have the same rights as private owners, but in addition may change the natural drainage when such is necessary in the public interest and when compensation is made for any property thus taken or damaged.

What must he refrain from doing to lands that surround him?

1. Damming or obstructing a natural channel so that the escape of surface water from upper land is retarded, or so that the channel is shifted.

2. Diverting water to lands that do not naturally receive his drainage.

3. Changing the point of entry of surface water on the lower land.

4. Bringing in water from another watershed that would not have flowed across the servient or lower land in a state of nature.

5. Polluting any waters that pass on through the property of others — whether surface or underground waters, streams or diffused waters.

6. Connecting tile with other owners' tile lines or with highway tile lines without consent.

7. Damming up or impounding large bodies of water which escape and cause serious damage to lower owners, even though such water may escape through natural channels.

8. Accelerating the flow of water needlessly or with malicious intent, to the material damage of a lower owner, even though through natural channels.

It is important that these common-law rights of drainage be clearly understood because statutory systems are based on benefits conferred by drainage districts, and in the absence of benefits conferred, a drainage district has no jurisdiction over land sought to be included in it. The courts hold that if a man has adequate drainage under common-law rules, then he is not benefited by a drainage district under the statutes (except for sanitary benefits which are negligible), and his land cannot be included in a drainage district against his wish. In other words, before a drainage district can get jurisdiction over a man's land it must appear that he has imperfect drainage at common law. The mere fact that the ditches of a drainage district carry off water that originates on the land of a farmer does not necessarily mean, in a legal sense, that the farmer is benefited by the drainage district, for if it appeared that the water would naturally have flowed off the land, or could legally have been made to flow off his land by artificial ditches on his own land, then he has adequate drainage at common law and cannot be taxed simply because that water, after it leaves his land, finds its way to the ditches of a drainage district.

But the whole law of natural drainage depends upon the existence of a dominant and a servient tenement, which depends, in turn, upon a difference of level in lands. If, therefore, two farms are on the same flat level, there is no right at common law to cast water on adjoining land or to dig a ditch through adjoining land, even though for lack of drainage both farms may be rendered useless. Moreover, the prohibition against

cutting through slight ridges and divides often makes cultivation of swampy land very difficult if dependence for drainage must be placed solely upon common-law rights.

Another situation that calls for relief is where there is natural drainage, but the drainways have become choked or clogged, or the fall is so slight that surface waters are not carried away fast enough to allow the land to be cultivated. At common law such a situation gives no right to one landowner to go on another's land and open up a channel to drain off his lands.

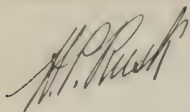
Where lands are valuable for cultivation and the country depends largely upon agriculture, the public welfare demands that an adequate system of drainage be provided. It is the main purpose of the drainage statutes of the State to make it possible for lands to be improved for agriculture and sanitation by draining off the surface waters where the natural or common-law drainage rights are inadequate. This is in general accomplished by the organization of drainage districts for the construction, by assessment, of a system of ditches and drains and in some instances of levees, embankments, and pumping plants.

H. W. HANNAH

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.



Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	74	51	58
1933.....	66	51	57	94	67	68	75	69	54	69
1934.....	75	65	76	100	79	73	74	80	70	75
1935.....	80	79	102	101	89	86	85	86	80	87
1936.....	81	81	105	100	105	109	110	101	93	103
1937.....	86	86	118	104	111	116	112	107	111	113
1938.....	79	69	90	98	96	107	109	100	85	89
1939.....	77	65	84	97	99	107	110	107	100	109
1940.....	78	68	89	98	105	114	116	115	114	125
1941.....	87	82	112	103	140	146	140	138	168	162
1942.....	99	105	141	117	193	200	169	175	245	199
1943.....	103	123	165	127	244	241	190	216	334	239
1944.....	104	124	165	132	255	240	182	240	346	236
1945.....	106	128	171	136	270	248	182	248	293	203
1946.....	121	148	204	151	308	302	200	254	266	170
1947.....	152	181	265	181	378	386	213	281	324	187
1947 June...	148	178	253	180	329	372	207	277	327	184
July.....	151	181	258	180	400	456	253	278	322	176
Aug.....	154	182	269	183	377	331	181	278	332	182
Sept.....	157	186	292	186	459	358	192	301	345	187
Oct.....	159	190	292	187	566	600	321	289	350	190
Nov.....	160	188	282	188	466	501	266	292	353	192
Dec.....	163	197	296	191	438	474	248	296	366	192
1948 Jan.....	166	199	310	196	385	434	221	297	359	193
Feb.....	161	185	263	194	276	289	149	296	354 ¹¹	194
Mar.....	161	186	272	193	285	304	158	296	358 ¹¹	192
Apr.....	163	187	278	195	308	328	168	295	347	188
May.....	164	189	276	195	313	330	169	296	347	191
June.....	166	196	292	196	360	368	188	302	359	192

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			Sept. 1947	Current months, 1948		
	1935-39	1946	1947		July	August	September
Corn, bu.....	\$.66	\$1.39	\$1.90	\$2.46	\$2.01	\$1.91	\$1.79
Oats, bu.....	.31	.77	.97	1.11	.82	.66	.67
Wheat, bu.....	.86	1.83	2.45	2.56	2.10	2.04	2.07
Barley, bu.....	.62	1.29	1.59	1.67	1.40	1.25	1.20
Soybeans, bu.....	.90	2.30	3.28	3.14	3.69	3.05	2.40
Hogs, cwt.....	8.52	17.53	25.04	27.60	26.50	27.30	27.90
Beef cattle, cwt.....	7.88	16.41	20.62	23.00	29.00	27.20	26.90
Lambs, cwt.....	8.36	16.38	21.31	22.50	28.20	25.60	24.20
Milk cows, head.....	58.00	147.00	173.33	175.00	200.00	200.00	205.00
Veal calves, cwt.....	8.66	16.78	23.30	24.00	28.70	28.70	27.60
Sheep, cwt.....	3.58	6.99	7.39	7.40	9.50	9.50	9.50
Butterfat, lb.....	.27	.63	.69	.80	.78	.74	.68
Milk, cwt.....	1.68	3.80	4.00	4.15	4.45	4.60	4.65
Eggs, doz.....	.19	.34	.41	.47	.38	.40	.42
Chickens, lb.....	.15	.27	.27	.27	.33	.34	.34
Wool, lb.....	.25	.43	.40	.41	.44	.44	.42
Apples, bu.....	1.08	3.37	2.72	1.95	2.25	2.25	2.25
Hay, ton.....	9.39	15.55	16.87	15.50	19.70	18.70	20.80
Potatoes, bu.....	.91	1.70	1.91	2.10	2.20	2.00	1.95

¹⁻¹² For sources of data in tables see preceding page.

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ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture • University of Illinois • Department of Agricultural Economics

G. L. Jordan, Editor

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CROP PRODUCTION COSTS IN 1947

In 1947 there were 24 farmers in Champaign and Piatt counties, Illinois, who kept data on their farms from which it was possible to obtain the cost of producing different farm products. This was the twenty-eighth year farmers in this area kept cost records in cooperation with the University. Records show that farmers cooperating in the cost study obtained higher yields and their farms were better managed than those of the average farmer in the area. As a result, it may be assumed that costs per unit were also lower on these farms than on the average of all farms but the data are valuable in comparing the relative cost of producing different products.

Weather conditions in 1947 in east-central Illinois, where Champaign and Piatt counties are located, were not favorable for corn and soybean production. Excessive rainfall in April and May retarded ground preparation and planting, and a lack of rainfall in July and August further reduced yields. The spring weather, however, was favorable for small grains. The following indicates average yields per acre on these accounting farms for 1946 and 1947:

	1946	1947
Corn.....	76.1	48.8
Soybeans.....	24.7	21.9
Oats.....	45.6	44.8

Methods employed in computing crop costs govern their use. In interpreting the crop cost figures which appear in Table 1 it should be recognized that some assumptions must be made. The costs of production on these superior farms are lower than the actual costs which would be

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

TABLE 1.—THE COST OF PRODUCING CROPS IN 1947 IN CHAMPAIGN AND PIATT COUNTIES, ILLINOIS

Crop	Corn	Soybeans	Oats	Alfalfa hay	Clover hay
Acres in crop per farm.....	95.0	80.3	45.7	10.8	29.4
Yield per acre, bushel or tons.....	48.8	21.9	44.8	2.46	1.04
Labor and power per acre					
Man hours.....	5.74	4.40	2.64	10.72	2.74
Horse hours.....	.57			.07	.01
Tractor hours.....	4.64	3.12	1.82	5.74	1.22
Truck miles.....	.33	1.31	.83	.47	.88
Cost items per acre					
Growing costs					
Man labor.....	\$ 3.16	\$ 2.77	\$.79	\$	\$
Horse labor.....	.04				
Tractor use.....	2.77	2.09	.74		
Machinery.....	1.40	1.20	.87		
Seed.....	1.35	4.15	2.77	1.88	1.80
Manure and fertilizer.....	3.22	1.54	1.88	.97	.89
General overhead.....	3.91	3.18	2.03	6.49	1.99
Total growing cost.....	\$15.85	\$14.93	\$ 9.08	\$ 9.34	\$ 4.68
Harvesting costs					
Man labor.....	\$ 1.86	\$ 1.23	\$ 1.55	\$10.19	\$ 2.72
Horse labor.....	.30			.05	
Tractor use.....	1.16	.60	.83	5.27	1.18
Picker and pick-up baler.....	1.47			4.19	3.04
Combine.....		1.84	1.83		.09
Machinery and truck use.....	.02	.16	.10	4.19	1.31
Total harvesting cost.....	\$ 4.81	\$ 3.83	\$ 4.31	\$23.89	\$ 8.34
Cost of growing and harvesting.....	\$20.66	\$18.76	\$13.39	\$33.23	\$13.02
Taxes.....	2.07	2.09	2.11	2.18	2.06
Interest at 5% on land value.....	6.92	6.88	6.90	6.71	6.53
Total cost.....	\$29.65	\$27.73	\$22.40	\$42.12	\$21.61
Income per acre					
Grain or seed.....	\$109.85	\$71.22	\$40.32	\$	\$.14
Pasture.....	1.54	.11	1.04	2.44	.76
Straw or hay.....			2.17	55.96	22.94
Total income.....	\$111.39	\$71.33	\$43.53	\$58.40	\$23.84
Net cost per bushel or ton.....	\$.576	\$ 1.260	\$.429	\$16.11	\$19.96

realized over a long period of years because: (1) The land values used, exclusive of buildings, are below current sale values for land; (2) the operator's labor is included at cost of hired labor and no allowance is made for management (these operators, however, would not continue to farm under present conditions if they did not realize higher earnings than hired man's wages); (3) no allowance is made for fertility removal from the soil because no very satisfactory measure of the cost of fertility is available. Later in this discussion these three items will be approximated to show their effects on costs.

Increased use of mechanical power and large tractor-drawn machinery in crop production has resulted in reduced man labor needs. The influence of tractor power on amount of man labor used in crop production can be very definitely traced in the production of corn. An average of 15.7 hours of man labor were used per acre during 1920-1922 but only 6.4 hours in 1945-47 (Fig. 1). Tractor hours, however,

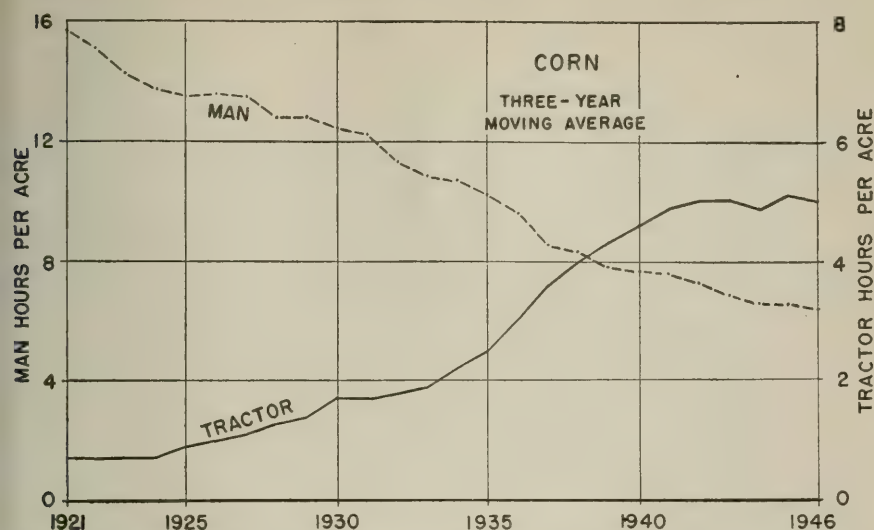


FIG. 1.— HOURS OF MAN LABOR AND TRACTOR USE PER ACRE IN PRODUCING CORN
(In addition to the tractor, 36.3 horse hours were used per acre annually in the three years centering on 1921, and .7 of an hour in the three years centering on 1946.)

increased from seven tenths of an hour to 5.0 hours per acre during the period.

The same general trend occurred in the growing of soybeans. It was not until 1922 that soybeans were raised on the farms included in this study in large enough quantities to give a reliable cost figure. In the three years 1922-1924, 13.4 man hours were used to produce an acre of soybeans. In those years an average of only seven tenths of a tractor hour per acre was used; by 1945-1947 man hours had declined to 4.4, while the tractor use had increased to 3.1 hours per acre (Fig. 2).

Cost of producing corn in Champaign and Piatt counties in 1947. The cost of growing an acre of corn in 1947 up to the time of harvest was \$15.85 without including taxes or a land charge (Table 1). Of these growing expenses, the cost of labor was 20 percent, power and machinery 26.5 percent, and seed and fertilizer 29 percent. When the cost of harvesting the crop and taxes of \$2.07 per acre were added to growing expenses, and the credit of \$1.54 given for stalk pasture, the net operating cost per acre of corn was \$21.19. Land was conservatively valued at \$138 an acre. Adding five percent on this land value to the net operating costs gave a net acre cost of \$28.11. The yield of corn on these farms in 1947 was only 48.8 bushels which gave a cost of 57.6 cents a bushel to grow and

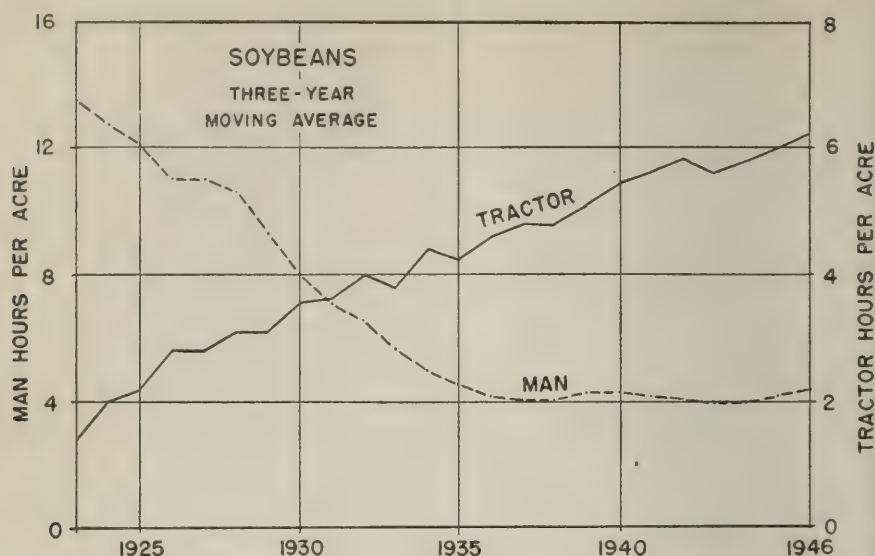


FIG. 2. — HOURS OF MAN LABOR AND TRACTOR USE PER ACRE IN PRODUCING SOYBEANS
 (In addition to the tractor, 29.1 horse hours were used per acre annually in the three years centering on 1923. No horses were used in producing soybeans in the three years centering on 1946.)

harvest corn without making allowances for management, fertility used, or the current higher cost of land.

Cost of producing soybeans. The acre-yield of soybeans on the accounting farms continued its decline in 1947, when the yield was only 21.9 bushels per acre. The net operating expense in producing an acre of soybeans in 1947 was \$18.65. Adding interest at five percent on the estimated value of land that grew beans, and including \$2.09 for land tax, it meant a net acre cost of \$27.62. The average yield of 21.9 bushels gave an average cost of \$1.26 a bushel.

Cost of producing oats. In 1947 the oat crop was windrowed and harvested with the pick-up combine on all farms in the cost study. The net operating expense for producing and combining an acre of oats was \$12.29, after deducting the credit for straw and pasture. When land charges were added, the net cost of producing an acre of combined oats was \$19.19. The oat yield per acre was 44.8 bushels, and the average cost per bushel was 42.9 cents.

Cost of producing alfalfa hay. The net cost of the alfalfa crop per acre was \$39.68 when taxes and interest on the capital in land were included and after a small credit for pasture had been deducted. Pick-up

balers were used to bale 77 percent of the hay, field forage choppers were used to harvest 16 percent, and the remaining 7 percent was handled with hayloaders. The average cost of producing a ton of alfalfa hay in 1947 was \$16.11.

Cost of producing clover hay. Clover hay was grown on only one third of the farms where cost accounts were kept. Clover hay has not been a good-yielding hay in east-central Illinois. The average production of 1.04 tons per acre, which occurred in 1947 was about two thirds of a normal yield for the crop. All the clover hay grown on the farms in the study was harvested with pick-up balers. The net cost of producing an acre of clover hay was \$20.71. With the yield per acre slightly above one ton the average cost per ton was \$19.96.

Some real costs are not included in Table 1. When the costs of individual crops in a rotation are shown there often appear large margins between costs and market price. It is somewhat misleading when some crops show a much larger profit than others. As is often the situation, the more profitable crops in a rotation, such as corn and soybeans, draw more heavily on soil fertility than do the less profitable small grains and hays. No attempt was made, when arriving at the costs shown in Table 1, to charge for the fertility that was removed from the soil by different crops since no satisfactory method for evaluating such removal had been worked out. If a charge for fertility depletion had been charged against corn and soybeans, the margin between cost of production and the prices of these crops would have been narrowed considerably.

Crop costs are increased when charges are made for land at 1947 values, for farmer's management, and for fertility removed from the soil. The methods used in obtaining the cost figures shown in Table 1 were followed through the long-time study for the purpose of making a comparison between different crops and changes from year to year. With this purpose in mind the value of land was held at a fairly uniform level so as to eliminate the effect of wide fluctuations in the land charge. However a charge for the use of land may be made on the basis of the current selling price of land.

It is possible also to approximate a fair charge for management and for the fertility removed by crops and to recompute the cost of producing crops to include these items. From the best available information on charges that are being made by commercial farm managers for management it is possible to estimate a management charge. Agronomists have measured the amount of nitrogen, phosphoric acid, and potash removed from an acre of land when the grain and hay are removed. By placing a value on these elements on the basis of their purchase cost a charge may

TABLE 2.—CROP COSTS INCLUDING CHARGES FOR FERTILITY REMOVAL, MANAGEMENT AND A LAND CHARGE BASED ON SALE VALUE OF LAND, 1947

	Corn	Soybeans	Oats	Alfalfa hay	Clover hay
Cost items per acre					
Cost of growing and harvesting from Table 1 . . .	\$20.66	\$18.76	\$13.39	\$33.23	\$13.02
Excess of fertility removed over fertility returned	.51	.62	.36	11.33	3.22
Management, 4% of gross income	4.39	2.85	1.61	2.24	.92
Computed cost of growing and harvesting	\$25.56	\$22.23	\$15.36	\$46.80	\$17.16
Taxes (from Table 1)	2.07	2.09	2.11	2.18	2.06
Interest at 4% on \$270 land value	10.80	10.80	10.80	10.80	10.80
Total computed cost	\$38.43	\$35.12	\$28.27	\$59.78	\$30.02
Less credit for pasture and straw (from Table 1) . .	1.54	.11	3.21	2.44	.96
Net computed cost	\$36.89	\$35.01	\$25.06	\$57.34	\$29.06
1947 yield per acre, bushels or tons	48.8	21.9	44.8	2.46	1.04
Net cost per bushel or ton	\$.756	\$ 1.600	\$.559	\$23.31	\$27.94

be secured for total fertility removed. The net fertility charge is obtained after giving credit for farm manures, phosphates, and commercial fertilizers applied to the land.

From the best available information on 1947 land values, on charges for management exerted by the farmer, on the value of fertility elements withdrawn from the soil in the harvested crops, and reduced interest rates the computed costs of crop production including these charges are shown in Table 2.

The farmer must reckon the returns from the rotation as a whole and the more profitable crops must carry the less profitable ones required in a good rotation. Corn and soybeans, the main cash crops in central Illinois, must help carry the oat and wheat crops and the legume crops grown for soil improvement. Both groups are less profitable than corn and soybeans, but they are necessary to maintain the productivity of the soil and to make the rotation profitable in the long run.

R. H. WILCOX

HOW ILLINOIS FARMERS BUY AND SELL SHEEP AND LAMBS

In 1947 Illinois farmers sold about 900 thousand lambs and sheep. This was made up of 542,063 feeder lambs purchased and 388 thousand lambs saved from breeding flocks. Where the sheep and lambs were purchased is shown in Figure 1.

The heaviest purchases of feeders through public markets is in August; but the heaviest purchases from other sources is in September. About 54 percent were purchased through public markets in 1947 compared to 23 percent in 1940.

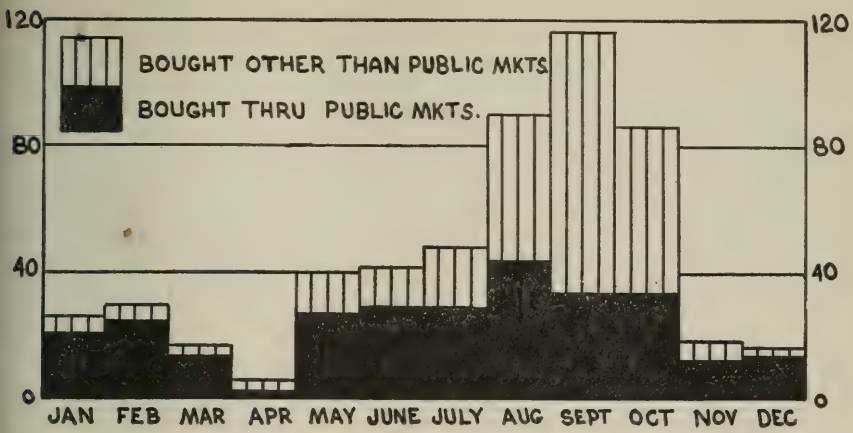


FIG. 1. — NUMBER OF FEEDER SHEEP AND LAMBS BOUGHT BY ILLINOIS FARMERS BY MONTHS, 1947. (IN THOUSANDS)

Where do the feeder sheep come from? In the year, July 1, 1946 to June 30, 1947, Illinois purchases other than through public stockyards were from the following states: Texas, 30.1 percent; Wyoming, 30.0 percent; Montana, 15.5 percent; and the remainder from Kansas, Colorado, Idaho, Nevada, etc. The public stockyards furnishing three-fourths of the feeder lambs were: Ft. Worth, 30.2 percent; Kansas City, 12.8 percent; Chicago, 12.8 percent; South St. Paul, 12.3 percent; and Omaha, 8.4 percent.

Where are sheep slaughtered? In 1947, 16.5 percent of the federally-inspected sheep were slaughtered in the northeastern states; north central (east of the Mississippi), 13.5 percent; north central (west of the Mississippi), 43.9 percent; south central, 8.2 percent; mountain, 5.0 percent; and Pacific, 12.9 percent. Since relatively few sheep are raised in the Northeast large shipments of live animals are made into that region.

In 1947, 687,643 sheep and lambs were slaughtered at Chicago, and 522,957 at East St. Louis. In addition 261,460 head of non-feeders were shipped from Chicago, and 279,678 head were shipped from East St. Louis. These shipments were primarily to the eastern markets for slaughter.

When are sheep slaughtered? In a given area slaughter tends to be heavier when supplies are most available, thus marketings east of the Mississippi are heavier in October and November, while slaughtering is heavier in the south-central states in May and June where early spring lambs are produced. Figure 2 shows this situation in the Chicago and East St. Louis areas.

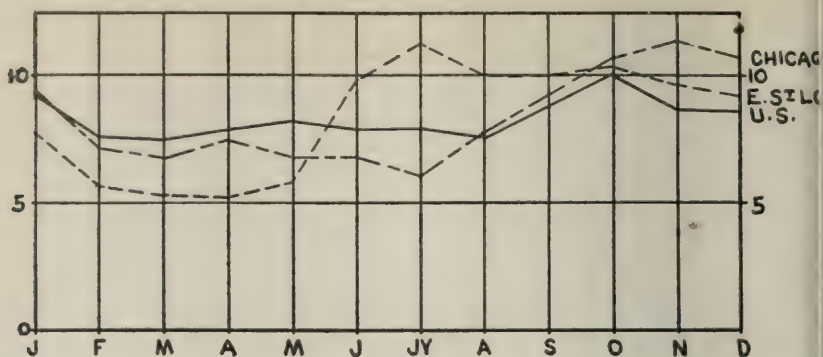


FIG. 2. — PERCENT OF SHEEP AND LAMBS SLAUGHTERED BY MONTHS UNDER FEDERAL INSPECTION IN THE UNITED STATES, CHICAGO AND ST. LOUIS AREAS, 1947

For the United States 86.2 percent of the sheep and lambs slaughtered in 1947 were lambs and yearlings, and 13.8 percent were sheep. The percentage of lambs and yearlings ranged from 95.2 in April to 72.0 in October.

Prior to the war when sheep numbers were increasing the percentage of lambs and yearlings slaughtered was normally about 90, but reduction in breeding stock and sheep numbers in recent years has increased the percentage of sheep.

How are slaughter sheep purchased? In 1947, 60.4 percent of the slaughter sheep and lambs were purchased through public stockyards compared with 84.7 in 1930. Thus there has been a gradual decrease in the percentage so purchased.

How heavy are slaughter sheep and lambs when marketed? In 1935 the average liveweight was 84.4 pounds but there was a gradual increase to 93.6 pounds in 1947. There has been a tendency toward a lower dressing yield. In 1935 sheep and lambs dressed out 47.1 percent; in 1943, 45.4 percent; in 1947, 46.2 percent. In the late winter of 1948 these heavier carcasses were taking a big discount on the market partly because of limited outlets. February and March are usually the months when the heaviest sheep and lambs are marketed. In 1947 the average weight in March was 101.4 pounds, in 1946 in February it was 101.1 pounds. The lightest average weights are marketed in June and July. June is usually the month of highest prices for Illinois farmers.

W. J. WILLS

THE USE OF CAPITAL TO INCREASE FARM RETURNS IN JOHNSON COUNTY, ILLINOIS

Similar to other lesser productive areas in the Mississippi Valley, agriculture in Johnson County is lagging far behind the technical know-how of today. Neither the land nor the labor resources on most of the farms is employed efficiently. Much of the land lies idle each year due to declining crop yields and the failure to make land use adjustments necessary for maintaining productive soil. Workstock is still the primary source of power. With the pressure generated by rising postwar prices and a shortage of farm labor the potential productive capacity and use of resources in these areas is receiving increased attention.

Full transition from a subsistence-type farming to a commercial farming enterprise requires considerable capital—more than most farmers in the area can afford out of their current income. Thus, additional capital is an important factor in breaking this circle of inefficiency and raising the effective output of agriculture. This is a report of a study that was made to calculate the increased farm returns on representative farms that could be obtained from planned applications of capital through the extension of credit.

Carefully executed lending practices are necessary for financing this type of farm development. The disbursement schedule in the proposed plan is determined by the amounts needed for specific scheduled jobs. The repayment plan is based upon the anticipated increased income resulting directly from the better farming practices outlined in the plan.

In making this analysis representative farms based on size, land use capability, and organizational setup were selected in Johnson County. This selection was made by first stratifying all farms in the county according to the number of acres in the various land use capability classes. The local unit conservationist of the Soil Conservation Service furnished land use capability data on all Johnson County farms. Next, farm organization data were obtained by personal interviews from a sample of farms in each stratified class.

Local experiment station data and livestock enterprise records obtained from a sample of farmers in the county were used as a yardstick in measuring the productive capacity of the farms. No alternative development possibilities were calculated since the plans are designed to fit the present operational setup in each case. The operator's preference was the primary factor in determining the direction that expanding livestock enterprises will take. The speed of putting each plan into operation was determined by the available labor supply. A minimum of hired labor was planned. As a final analysis, calculations were made to determine the feasibility of combining two farms or tracts of land into one operation.

The procedure used in each farm case is as follows:

1. The present enterprises were expanded and new ones added only as the operators expressed a preference in that direction.
2. Land use, structures, fences, and additional buildings were planned according to recommendations of the local Soil Conservation Service Technician and County Farm Adviser.
3. Crop production was calculated by using yields somewhat below experiment station yields on similar soils with similar soil treatments and care. Twenty percent more pasture was provided than will be needed for the average year.
4. The average efficiency of livestock production on the surveyed farms was used to measure the potential livestock production.
5. Actual 1946 prices were used in calculating costs.
6. Average 1936-1942 Illinois farm prices were used to calculate income and ability to repay the debt.
7. Fifty percent of the calculated increased income was applied toward retirement of debt.
8. The outstanding debt balance was figured at 5% interest.
9. The credit analysis was based upon an owner-operated mortgage-free tract.

FARM 1

This is a small dairy farm of 100 acres operated by the elderly owner, his wife, a younger son-in-law and wife. The present land use program consists of corn, 10 acres; lespedeza hay, 23 acres; pasture, 33 acres with 16 acres of idle land. The remaining 18 acres are in the farmstead, roads, lanes and a woodlot. The livestock program is built around a herd of 7 milk cows. Three young dairy cattle are kept as replacements. One litter of pigs is raised annually, and one hundred laying hens are kept. Two workstock furnish the source of farm power.

According to the land use capability map, 18 acres of the farm are capable of being row cropped with an additional 10 acres available for hay, pasture and small grain crops. In view of these basic soil conditions the prime needs of the operation are more and better hay and pastures for an expanded livestock grazing program.

The fertilizer, seeding and land use program will increase the roughage production. The proposed plan also calls for as much small grain as a practical rotation will permit, since approximately one-third of the grain and all protein supplement feeds must be purchased. The milk cow numbers will be increased from 7 to 10 over a three-year period by keeping additional replacement heifers. After the program has progressed two years a flock of 41 sheep is to be added, and increased to 62 by the end of

the fourth year. Other livestock enterprises will be maintained at their present numbers.

Additional farm machinery could be justified after the program is well under way. However, the fairly complete horse equipment setup is sufficient at the present time with the available supply of labor.

New cost items include fences, building improvements, limestone, phosphate, breeding stock, seeds and feed. Some custom work for shearing sheep and harvesting small grain has also been included. The year-by-year cost and income summary of this operation follows:

SUMMARY OF COST AND INCOME—FARM 1

	1942-46 Average	1st Year	2nd Year	3rd Year	Final Average
Costs.....	\$307	\$1,826	\$1,225	\$ 650	\$ 632
Cash income.....	878	1,052	1,431	1,760	1,760
Credit needed.....		1,345	365	.....	.....
Outstanding balance, 5% int....		1,345	1,777	1,579	1,397
Repayments (50% of net increase).....		.....	.....	269	279
Available security, real estate (normal value).....	3,500	.....	.....	.....	4,688
Amt. available for family living..	571	571	571	841	1,128
Days productive labor.....	185	.....	.....	.....	265

FARM 2

The labor force on this 144-acre farm consists of the young operator and his wife who earn a net income of \$308 at the 1936-1942 level of prices. The operator rents on an annual basis a few additional acres and does some seasonal wage labor in nearby orchards to supplement the farm earnings.

The only crops grown are 12 acres of corn and 19 acres of hay. The remaining 113 acres, 46 acres of which are woodland, are pastured. A large part of the non-wooded pasture acreage is gullied or covered with brush. A herd of 14 beef cows is the main source of income. Other livestock consisting of one dairy cow and 50 hens are kept primarily for home use.

As in the previous case, only a small acreage on this farm is capable of being row cropped. Thus improving the grazing capacity of the pasture acreage and producing more hay for an increased beef herd are the immediate objectives of the plan. The new plan calls for 5 acres of corn, 5 acres of small grain, and 21 acres of hay annually. Some of the more level woodland will be cleared for additional pasture. All brush is to be removed from the remaining pasture acres which total 63.5. Only 36 acres are to remain in the farm woodlot.

The livestock plans call for increasing the beef cow herd to 17 mature

cows, 3 replacement heifers, and 1 bull by the fourth year. An additional dairy cow will be added and the poultry flock increased from 40 to 100 hens.

The horse drawn equipment is in good condition and outlays for tractor equipment cannot be justified with this program. Large outlays for mineral fertilizers are necessary. Other expense items include fences, a pond, seeds, breeding cows, and baby chicks. The buildings are sufficient for this expanded program.

A summary of the cost, cash income, and credit analysis follows.

SUMMARY OF COST AND INCOME—FARM 2

	1942-46 Average	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	Final Average
Costs.....	\$564	\$1,816	\$1,268	\$ 804	\$ 352	\$ 365
Cash income.....	872	163	1,056	931	1,159	1,218
Credit needed.....	...	1,961	520	181	.....	.....
Outstanding balance, 5% int.....	...	1,961	2,579	2,889	2,783	2,649
Repayments (50% of net increase).....	...	.....	.....	.....	250	273
Security, real estate (normal value).....	...	2,880	.....	.....	.....	4,570
Amt. available for family living.....	308	308	308	308	558	853
Days productive labor....	...	79	.....	.....	.....	142

The two farm cases illustrate Johnson County farm income possibilities on typical farm units when credit is applied on a farm plan basis. At average 1936-1942 Illinois farm price, the amount of money available for family living on Farm 1 could be increased from \$571 to \$841 per year, by the end of the third year, and to \$1,128 after the debt is repaid. Similar income rises are anticipated on the other farm. In each case the income less costs more than doubles after the debt is retired.

Even with the large percentagewise increases shown in the proposed plans, the money available for family living remains low. In addition the drudgery of hand and horse labor has not been eliminated. The small size of business makes the carrying of large machinery inventories unprofitable. A search for adjustment possibilities to further raise the efficiency level of these farms led to farm combination plans.

In the first trial analysis it was assumed that the operator of Farm 1 purchased with borrowed money Farm 2 along with all the livestock and equipment carried on that tract. All horses and horse drawn equipment are then sold and the farm completely outfitted with a tractor and tractor drawn equipment necessary for the operation.

All calculations were made on the same basis as the representative

farm cases. Machinery was charged at local 1946 prices. Operation depreciation and repair costs were based on Iowa State College studies.¹

The cost, cash income, and credit analysis of Farm 1 and Farm 2 combined into one operation follows.

	1942-46 Average ^a	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	Final Average
Costs, including purchase of real estate.....	\$307	\$9,379	\$2,799	\$1,780	\$1,337	\$1,349
Cash income.....	878	1,909	3,203 ^b	3,005	3,233	3,292
Credit needed.....	...	8,041	569	.....	.....	.....
Outstanding balance.....	...	.....	9,012	9,135	8,929	8,689 ^b
Repayments.....	...	.....	.....	327	663	686 ^b
Security						
Real estate.....	...	.....	.....	.....	.....	9,158 ^c
Chattel.....	.....	.....	.....	.....	.....	5,218
Total.....	.....	.....	.....	.....	.....	\$14,376
Amount available for family living.....	571	571	571	898	1,233	1,955 ^d
Days productive labor....	185	.....	.....	.....	.....	365

^a Farm 1 only. ^b 5th year data. ^c Includes machinery plus breeding and replacement livestock only. ^d After debt is repaid.

In general the two farm case studies plus the analysis of the combined tracts illustrate how credit properly applied can be effective in raising the efficiency level of farming in the area. The money available for family living on typical farms can be approximately doubled during the repayment of a loan at 5 percent interest for farm improvement purposes. Possibilities exist for increasing farm returns still further by combinations of two or more tracts into single operating units with a farm improvement program.

C. B. LUTTRELL²

FARMERS AND LIBRARY SERVICE

"Read a book? When would I have time for that? Can't read what I get in the mail now. Anyway, I'm too tired for reading when I have the time. Most of the stuff we get is way over my head; it's too hard to get the kind of book that would interest a farmer like me."

Let's face the problem of providing farm people in Illinois with library service. Most farm people have no access to good free library service. In many cases the training for reading has created an aversion to reading

¹ Iowa State College Experiment Sta. Bul., P. 37, 1942.

² Former employee of the Department of Agricultural Economics, now Agricultural Economist, Memphis Branch, Federal Reserve Bank of St. Louis. This is a report of a study used as a Master's Thesis.

—reading was taught in school as a painful process. The style of writing in materials available to farmers is above their heads.

For example, most educational material is written for high school or college level consumption, yet the median school years completed for rural-farm persons over 25 years of age in Illinois in 1940 was 8.1. Three-fourths (73.4 percent) of the rural-farm population 25 years old and over in 1940 had not gone beyond the eighth grade. Many of these had been trained in the one-room school, and their training in reading was no more than that offered in the grade school. Reading materials, therefore, should be gauged to grade school terms if these people are to be expected to use them intelligently. This is no reflection on the innate intelligence of farm people; it is a reflection on the educational facilities available to them, including libraries.

The fact that farm people have had to do, without library service means that many of them feel they do not need libraries. It is only when farm people experience the benefits that can come from books and other library service that they will come to want these services. This is the reason demonstrations of service are so important. The importance of careful selection cannot be overemphasized. Books that appeal to farmers, written so they can understand them, should be selected. In order to be able to make up lists that will appeal, librarians need to find out from farmers what they need and desire.

The amount of reading materials already available to farmers through other than library services is also of concern. Most farmers get one or two farm magazines. Many of them are on mailing lists of various agricultural agencies, such as the Extension Service, Soil Conservation Service, farm bureau, home bureau, Grange, Rural Electrification Administration, Farm Credit Administration, and others, and get bulletins, circulars, and house organs regularly from these agencies. For an increasing number of people the county farm adviser's and home adviser's offices are the sources of library service. Some farmers feel that they can go to the nearby town or city library, pay the fee required of "outsiders," and get the books they want or need. Too often, however, they cannot find what they want in the town library, and only one fruitless trip may dissuade a farmer from returning.

It has been demonstrated over and over that once farm people experience good library service they "take to it." Often the first appeal is made through the children, by a child in the later years of grade school bringing home a book and mother reading it. If the mother likes it she will tell her grown son about it, and he may read it. The father may be the last to be won over but when he is the service is really sold. This is the order shown by studies in which farm people take part in organizations: the initial ap-

proach is through the daughter, then the wife, then the son, and last the father. This is not always the way, but if the father is the first one to take interest it may be in materials of concern to the man or the producer.

Farm people, once they discover the wealth of material in books, turn to them for many reasons. Some look for specific information on marketing, buying, tractor repair, or baby care; others seek in books, pamphlets, magazines, and newspapers an understanding of the current social, economic, and governmental problems which vitally affect the life of every individual. Wise folks look for the background of current problems in the pages of history and in the biographies of great leaders. A few persons find inspiration in poetry and prose, while others see distant lands through books of travel, and many more turn to good stories for entertainment and relaxation.¹

The neighborhood and community leaders of rural people need help in finding materials to plan and carry out the programs of their particular groups. Most of them do not know how to find what they need quickly and simply in books and other library materials. Librarians are needed who understand how to find the right books and the right places in them to meet the needs of these rural leaders. They should be able, not only to get the books that farmers want when they want them, but to know farm problems well enough to call attention to materials available to meet these problems. This is the way to "sell" farmers on library service.

D. E. LINDSTROM

ILLINOIS FARM DRAINAGE LAW MANUAL

Part II²

Statutory Enlargement of the Rules of Natural Drainage

A. General remarks.

There are two laws which enlarge an owner's right to improve his drainage beyond the point permitted under the natural drainage theory. One of these laws, approved in 1885, consists of seven sections in the Agricultural Drainage Act under the general heading "Rights of Drainage." The other is an act of 1889 in regard to drains constructed by mutual license or agreement.

Neither of these acts alter a landowner's rights or duties on his own land, but both are important because they offer means apart from district organization whereby he can to a limited extent improve or maintain his drainage across the lands of other owners.

Another law, passed in 1897, provides that landowners shall annually

¹ See Lindstrom, *American Rural Life*, Ronald Press, New York, 1948, p. 282.

² Part I was published in the October 1948 issue of *Illinois Farm Economics*.

clean brush, logs, and other impediments out of streams flowing through their property. This law, however, is subject to certain limitations which will be discussed.

B. "Rights of Drainage" across property of others.

This law provides four things:

1. A codification of the natural drainage rules.
2. That water may be drained through the course of natural drainage into a drain along a public highway with the consent of the highway commissioners.
3. A procedure under which an owner may extend his drains across the land of others, when such is necessary to perfect his drainage, and when the extension meets certain conditions imposed by the law.
4. A penalty for willfully impairing or impeding the construction of any drain established under this law.

The section which codifies the natural drainage theory states: "Owners of land may drain the same in the general course of natural drainage, by constructing open or covered drains, discharging the same into any natural watercourse, or into any natural depression, whereby the water will be carried into some natural watercourse, or into some drain on the public highway with the consent of the commissioners thereto; and when such drainage is wholly upon the owner's land, he shall not be liable in damages therefore to any person or persons or corporation."

The Illinois courts have not assumed that this law alters in any way the civil law rule of drainage as it is interpreted and used. However it does add some certainty to one situation — the use of highway drains by landowners — by stating that such use can be made with the consent of the highway commissioners.

The procedure outlined for securing drainage through the lands of others is initiated before a justice of the peace, by summons, and is predicated upon the following conditions:

1. Refusal of other owners to consent.
2. Assumption that the owner seeking to extend his drainage will do so at his own expense.
3. Necessity of such extension to obtain a proper outlet.
4. That the water carried by such drain would empty into a natural watercourse, or into a natural depression leading to a natural watercourse or drain on a public highway.
5. The highway commissioners consent if their drain is used.
6. That the extension, if constructed, will be an ample and properly made tile ditch.
7. Payment of damages incurred by owners across whose property the extension is constructed.

8. Filing of a bond for not less than fifty dollars, with approved security, covering costs, and damages.

9. Filing a plat showing the course of the proposed extension, and where it will discharge.

If the justice, or the jury, if a jury is impaneled, find for the plaintiff, and all conditions in the law are met, the owner can proceed to construct his drain. Payment of the judgment and costs to the justice is a necessary prerequisite. An owner may abandon the construction of such a drain, even after judgment in his favor, but he must pay costs of the trial. In case the project is abandoned a suit for the same purpose cannot be commenced within the year following judgment.

Once such a drain is constructed, the law makes willful injury to it a misdemeanor punishable by fine, and for a third or subsequent offense, by imprisonment. Willful interference with the construction of such a drain is subject to the same penalties. Conversely, the law places upon the one constructing such a drain and upon his heirs and assigns a duty to keep it in good repair, so it will not injure the property through which it passes. In order that he may meet this obligation he is privileged to enter the lands of others at any time, in proper season. To insure due regard for the property rights of the latter, triple damages are provided for unnecessary damage.

C. Drains constructed by mutual license or agreement.

In 1889 the legislature approved an act declaring legal ". . . drains heretofore or hereafter constructed by mutual license, consent or agreement, by adjacent or adjoining owners of land . . ."

In each instance there is a question of fact as to whether the drain is one ". . . for the mutual benefit of all the lands interested therein." The act itself states that such will be deemed to be true when:

1. ". . . any ditch or drain, either open or covered, has been heretofore or shall be hereafter constructed by mutual license, consent, or agreement of the owners of adjoining or adjacent land, either separately or jointly, so as to make a continuous line upon, over, or across the lands of several owners."

2. ". . . where the owner or owners of adjoining or adjacent lands shall hereafter by mutual license, consent, or agreement, be permitted to connect a drain with another already so constructed."

3. ". . . where the owner or owners of the lower lands have heretofore or shall hereafter connect a drain to a drain constructed by the owner or owners of the upper lands.

In interpreting these provisions the courts of Illinois have added the following rules:

1. This act has no relation to or bearing on ditches authorized by the drainage acts.
2. A writing is not essential in proving consent or agreement.
3. Licenses revoked before this act took effect will not be revived by it. What constitutes a revocation is not always clear.
4. The act is intended to enlarge the natural rights of drainage between adjoining landowners and to protect the drains involved.
5. Highways and highway commissioners are included in the act in the same manner as landowners.
6. Owners possess a right to have such a mutual system maintained as established.
7. Drains which come under this act create a perpetual easement on the premises involved.
8. The act applies to existing ditches and to ditches constructed in the future — providing the necessary elements are present to constitute mutuality, agreement, or consent.
9. The rules of natural drainage are not affected except insofar as the mutual drain itself enlarges or alters those rights as between the particular owners involved.

Once a mutual drain is determined to exist two laws become applicable:

1. It is not lawful for one party to the drain to authorize connection by an outside owner, unless all parties to the drain consent.
2. None of the interested parties shall fill in a drain or interfere with the flow of water through it without the consent of all parties.

In either case an appropriate action may be taken — in the latter a mandatory injunction may be sought to compel the removal of the obstruction; in the former a bill in chancery may be maintained compelling a disconnection or filling of the unlawful connection together with damages.

Though this law is of value in preserving or securing drains for an owner, it contains no positive provisions permitting him to go on the lands of others and improve his drainage. The alternatives which an owner in a mutual drain may have in the absence of agreement are either to institute proceedings before a justice of the peace and pay for the work himself or petition for the organization of a "user" district. This latter procedure will be discussed under the section on drainage districts. It may be true, of course, that the extent of the mutual agreement includes upkeep and maintenance on the drain involved — or it may be that such right has accrued by prescriptive use. Only the particular facts in each case can be relied upon to determine if either of these conditions exists.

D. Duty to clean out watercourses.

In 1897 a law was enacted providing that "All persons owning land in

this state shall clean annually all brush, trees, logs, and other impediments to the flow of water in the bed of any stream, however small, and extending from the top of one bank to the top of the opposite bank of any such stream, as far as any such stream shall run or border the land of any owner, and when any stream shall run between the lands of two or more owners, each party shall clean his part of such stream: Provided, that streams or runs less than 15 feet wide, and rivers of this state, shall not be included herein, and this act shall not interfere with fencing, flood-gates, bridges, culverts, . . ."

A second section of this same act, providing that the assessor should determine compliance and cause a penalty to be entered against the property if in his opinion there was non-compliance, was held unconstitutional by the Supreme Court of Illinois. Drainage lawyers are uncertain as to the value of this law. At one point streams "however small" are included, then further in the same section "runs less than 15 feet wide" are excluded, as are also "rivers of the state." No test is given for a determination of width, or of what constitutes a "stream" or "run." There are no supreme or appellate court cases interpreting this law.

E. Summary.

The laws just discussed may aid a particular landowner in four ways, all of which constitute an addition to those rights existing by virtue of the civil law rule:

1. He may extend a natural drain across the property of others when such is necessary to secure a proper outlet, by following the procedure and meeting the conditions outlined in the statute.
2. He may connect to a drain along the highway, with the consent of the highway commissioners.
3. He may prevent lower owners from interfering with the flow of water through a mutual drain, or from destroying or impairing such drains.
4. He may invoke the provisions of the law against an owner who does not clean out a stream or watercourse as defined in the law.

In addition to these specific statutory enlargements of the civil law rule, an owner may create rights by contract or by prescriptive use. But in spite of enlargement by court interpretation, statutes, contracts between owners and acquisition of rights by prescriptive use, thousands of landowners in Illinois would have remained comparatively helpless with regard to securing adequate drainage or flood protection had not comprehensive drainage district laws been provided by the legislature. The remainder of this manual deals with these district laws.

H. W. HANNAH

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

FREE—Cooperative Agricultural Extension
Work. Acts of May 8 and June 30, 1914

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	74	51	58
1933.....	66	51	57	94	67	68	75	69	54	69
1934.....	75	65	76	100	79	73	74	80	70	75
1935.....	80	79	102	101	89	86	85	86	80	87
1936.....	81	81	105	100	105	109	110	101	93	103
1937.....	86	86	118	104	111	116	112	107	111	113
1938.....	79	69	90	98	96	107	109	100	85	89
1939.....	77	65	84	97	99	107	110	107	100	109
1940.....	78	68	89	98	105	114	116	115	114	125
1941.....	87	82	112	103	140	146	140	138	168	162
1942.....	99	105	141	117	193	200	169	175	245	199
1943.....	103	123	165	127	244	241	190	216	334	239
1944.....	104	124	165	132	255	240	182	240	346	236
1945.....	106	128	171	136	270	248	182	248	293	203
1946.....	121	148	204	151	308	302	200	254	266	170
1947.....	152	181	265	181	378	386	213	281	324	187
1947 Aug....	154	182	269	183	384	331	181	278	332	182
Sept....	157	186	292	186	467	358	192	301	345	186
Oct....	159	190	288	187	573	600	321	289	350	190
Nov....	160	188	281	188	491	501	267	292	353	192
Dec....	163	197	296	191	425	474	248	296	366	192
1948 Jan....	166	199	310	196	385	434	222	297	359	193
Feb....	161	185	263	194	276	289	149	296	354	194
Mar....	161	186	272	193	285	304	157	296	358	192
Apr....	163	187	278	195	308	328	168	295	347	188
May....	164	189	276	195	313	330	169	296	347	191
June....	166	196	292	196	360	368	188	302	359	192
July....	169	195	297	196	404	479	245	304	360	186
Aug....	169	191	289	196	409	329	168	308	...	191

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			Dec. 1947	Current months, 1948		
	1935-39	1946	1947		October	November	December
Corn, bu.....	\$.66	\$1.39	\$1.90	\$2.45	\$1.32	\$1.19	\$1.23
Oats, bu.....	.31	.77	.97	1.20	.68	.74	.76
Wheat, bu.....	.86	1.83	2.45	2.90	2.07	2.12	2.18
Barley, bu.....	.62	1.29	1.59	2.00	1.25	1.30	1.32
Soybeans, bu.....	.90	2.30	3.28	3.81	2.30	2.41	2.40
Hogs, cwt.....	8.52	17.53	25.04	25.20	25.00	21.50	21.30
Beef cattle, cwt.....	7.88	16.41	20.62	21.30	23.40	21.80	20.70
Lambs, cwt.....	8.36	16.38	21.31	22.00	22.20	22.40	22.90
Milk cows, head.....	58.00	147.00	173.33	180.00	205.00	200.00	210.00
Veal calves, cwt.....	8.66	16.78	23.30	25.00	27.90	28.20	27.40
Sheep, cwt.....	3.58	6.99	7.39	7.90	8.00	8.40	8.70
Butterfat, lb.....	.27	.63	.69	.82	.63	.61	.64
Milk, cwt.....	1.68	3.80	4.00	4.65	4.45	4.30	4.10
Eggs, doz.....	.19	.34	.41	.55	.47	.52	.46
Chickens, lb.....	.15	.27	.27	.25	.30	.29	.32
Wool, lb.....	.25	.43	.40	.43	.42	.41	.42
Apples, bu.....	1.08	3.37	2.72	2.55	2.50	2.65	2.80
Hay, ton.....	9.39	15.55	16.87	20.50	20.90	21.70	21.30
Potatoes, bu.....	.91	1.70	1.91	2.10	1.85	1.80	1.80

¹⁻¹² For sources of data in tables see preceding issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

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PRICE LEVEL PROSPECTS¹

Price level prospects are dependent on the future state of general business activity. That is a relationship well established by the economic experience of the last few decades. It is particularly true of farm prices, since farm products go so directly into consumption, and the income of consumers is so directly dependent upon employment in industry and trade.

Just now, fear seems to have the upper hand — though many who fear a general decline feel that their own business position is sound. One of the most important current sources of fear is the existing tension on the international front. I do not think we can afford to minimize the dangers which exist in the present struggle for control of Europe and Asia, but the situation does bring to mind the thesis of a historian I know that after every war the victor takes measures to protect himself against the possibility of future attack. Today, we are victors; and we are making just such preparations. What makes the tension so acute is that we have only one opponent worthy of fear; and that opponent is also a victor, also fear ridden and also undertaking the same kind of protective measures we ourselves feel to be necessary for our safety.

The other basic fear is fear of a recession in business, with all its attendant evils of unemployment, reduced incomes and business failure. We carry over in our minds memories of the dark days of depression and possibly that is one reason why inflation does not impress us as the real economic bogey man.

¹ Abstract of remarks before the Farm and Home Week Program, University of Illinois, February 1, 1949.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

In the light of the facts, I shall attempt to show that we are not on the verge of collapse but have at least another year of prosperity ahead of us.

There are two main reasons for expecting business to continue good for the next year or so. These are the rising trend of Government expenditures and the construction boom. As long as these important elements continue so strong there can hardly be an appreciable letdown.

In the fiscal year 1948 — that is, the year ended last June 30 — Federal expenditures were at a postwar low of \$34 billion. Expenditures in fiscal 1949, which has just five more months to run, are estimated at \$40 billion. And the budget recently put before Congress by President Truman calls for expenditures of almost \$42 billion in fiscal 1950.

There is a distinct probability that actual expenditures in the coming fiscal year will exceed the budget estimate. This is true of military expenditures for example. Increases for the next two or three years were programmed in Congress last year and are more likely to be increased than cut back by the present Congress. Even if the budget is passed as it stands, total authorizations to the military agencies will exceed the budget expenditures estimate by over a billion and a half. To the extent that these agencies are able to push their programs along more rapidly, military expenditures may be increased over the estimate.

In addition, the budget estimates do not include military aid to Western European countries; this program is to be given separate consideration later.

They do include the continuation of the present foreign aid program at a high level. The Economic Cooperation Administration program is just moving into high gear. About 90 per cent of its current funds are now allocated; and with purchase approvals moving up even faster than allocations, a rising trend in procurement and shipments can be expected. The peak may be reached next summer, and the proposed new appropriation is large enough to insure that the subsequent decline will be slow.

Another important payments item, one not considered a budget expenditure will be the refunds to veterans of excess insurance payments, to be made in the latter half of this year. These are variously estimated at anywhere from \$1 to \$3 billion.

State and local government expenditures have also been rising sharply. They have passed the \$18 billion level and are now running a half billion higher than receipts. Because of the urgent needs for many of the programs covered by these expenditures both the expenditure total and the deficit to be covered by borrowing will continue to increase in the period ahead. As an example of the backlog of demand in this field, I would like to cite the recent report that Illinois alone needs \$2½ billion of work to fix up its roads.

According to the report of the Council of Economic Advisers total cash payments by all government units will "rise to perhaps \$61 billion for the calendar year 1949, more than \$9 billion higher than in 1948."

The increases in these programs should be more than enough to compensate any foreseeable declines in other important segments of the economy. In fact, the magnitude of the increases is so large as to suggest that the present downtrend in prices may again be reversed, as it has in each of the last two years.

At the same time the domestic economy still seems strong enough to make a pretty good case for itself. Construction gives every indication of continuing at high levels. The joint estimates of the Departments of Commerce and Labor place total private construction for 1949 slightly higher than in 1948. In this total estimate, slight declines in residential, farm, and industrial construction are more than offset by increases in commercial and public utility construction. With costs now practically stabilized, and estimated to continue so, this means a sustained level of construction activity throughout the year.

The retarding elements in the housing picture are of course high construction cost and the tightening of the mortgage market. These, however, do not seem to be insurmountable obstacles. While the demand for housing is unquestionably restricted by costs it is nevertheless large enough to sustain the boom through 1949. As for financing there is little to encourage any idea that funds are lacking. The only question is one of terms and rates; and even after recent increases interest charges are a smaller portion of the total costs of home ownership than in past periods of high construction activity. All in all, there is a definite possibility of at least reaching the 1948 level of housing expenditures and I believe the official government estimates for 1949 can be regarded as slightly on the conservative side.

Business investment, other than construction, has been showing some signs of slacking off a little and over the longer run can no longer be regarded as a force on the upside. Expansion goals of many businesses have been met, and new equipment expenditures by these firms will be lower in the future. However, others are still expanding; and in all lines of business, the need for modernization to increase efficiency or to improve products is keeping new machinery and equipment installations high.

Another factor sometimes considered likely to bring on a decline is the very rapid expansion of business inventories. At the end of October Commerce Department figures showed these to have reached a record high of \$54 billion. The increase in dollar value has unquestionably been large; but the advances that brought inventories up to this high level were in large measure advances in the prices of existing goods and not new

accumulations. Inventories are now more nearly in line with sales than in the war period but the inventory sales ratio for October was still twenty per cent lower than in 1939 and there is little evidence that inventories are overburdening.

Summing up at this point, it seems likely that the total of all these strategic types of expenditures will be higher a year hence than it is now. This is important not only in itself but for its implication that consumer incomes and expenditures will advance correspondingly. It indicates that the gross national product will be running at least several per cent higher at the end of 1949 — say, at an annual rate of \$10 billion higher than in the fourth quarter of 1948.

The facts do not justify many recent fears about buyers' strikes and reduced consumption. They show that consumer purchases are not departing widely from their normal relationship to incomes; that the income distribution is relatively favorable to high-level consumption; and that accumulated savings are still well distributed through all income groups.

In the last few months, since the decline in prices began, the flow of goods to consumers has definitely accelerated. This points to one of the most favorable aspects of the situation — namely, that further price declines, or further increases in incomes with prices stable, will tend to increase consumption. A moderately declining price level by no means holds the prospect of reduced production and employment.

Turning now to the question of prices, I do not believe a serious decline is anywhere in sight. Demands of Government, business, and consumers all give promise of continuing high; and until aggregate demand falls off there will be no serious break in the general price level. From a short run point of view, there is some likelihood that the price advance will be temporarily renewed in the latter part of the year.

From a somewhat longer run point of view it seems clear that the inflation has largely run its course. The factors underlying the recent declines may be summed up under two headings — increased production and reduced backlogs of demand. Even in the industries where backlogs of demand were greatest, and limitations on production were most severe, there has been a return to a more normal situation. We can depend on the tremendous productivity of this country to prevent prices from again going much higher.

On the other hand, I do not believe a sound case can be made for a sharp deflation in the near future. It is not generally realized how much the recent price declines were based upon the record farm production last year. All the recent declines have centered on these and related products. Future prices are also dependent in large measure on production, though for limited periods, they will be maintained by the support program.

Unless next year's crops are again overwhelming, the role of the Government's support program may well prove to be just that of maintaining the ever-normal granary, balancing out differences in the short run levels of demand and supply. In any case, it is much too early to predict that the Government will incur a sizeable loss on its support program either this year or next. During this period, large export markets for our grain will persist. Foreign nations not only place a high priority on grains for human consumption to eliminate bread rationing, but they have a great need of coarse grains for rebuilding their animal industries.

Why, then, have the fears of a collapse been so persistent? In part, it is based on the idea that what goes up must come down. This is one of those simple propositions that seems attractive at first glance but has little real merit. There is no immutable law of gravitation in economics. A boom does not end just because a boom can not go on forever. It ends because there is a decline in the expenditures that were forcing prices up.

In part, also, the argument of the pessimists is bolstered by a kind of circular reasoning. The price weakness is taken as an indication of more general economic weakness. The price reversal, it is felt, will bring on liquidation with consequent declines in production and employment. Only rarely, however, in those speculative situations where stocks are accumulated and then quickly thrown back on the market, are the price changes controlling. That was the kind of boom and bust following World War I.

The situation today is quite different from that of 1920. This boom is not primarily based on speculation. There has been no inordinate piling-up of inventories, no pyramiding of insecure loans and credit. We have already been through the transition period needed to get the construction industry into full swing and to bring output up to a high level in the reconverted durable goods industries. We have private investment and Government expenditures running at the rate needed to maintain current income flows, and we have the structure of incomes inflated to correspond with the level of prices. With these facts in mind, it can be firmly stated that the mere fact that prices are high does not mean that they are about to come down.

We may now hope for a period of prosperity, with national income generally rising, and the level of prices tending downward as more and more prices are brought back into line. This does not mean that all our economic problems have been solved. I do not think we can look much further than a year ahead and even that depends on our international affairs. The timing of the next decline can be forecast only on further developments.

V LEWIS BASSIE¹

¹ Director, Bureau of Economic and Business Research, University of Illinois.

FACTORS DETERMINING POSTWAR PRICE TRENDS¹

We are now (February 1949) a little past the crest of a period of price inflation. The weekly index of wholesale prices (1926=100) reached a peak of 170 last August. It is now down to about 157, but not all groups have declined. For the week ending February 8, the last for which the indexes have been computed, metals and metal products and fuel and lighting materials remained at the highest levels they have reached.

Wholesale prices of farm products reached their highest point a little over a year ago. They were nearly as high again in June, but now have declined about 20 percent from the January 1948 peak. The index of prices received by Illinois farmers as of January 15 was down 26 percent from its level of a year earlier, while the United States farm price index declined only 13 percent.

Are these price declines a healthy readjustment to the increased production of agriculture and other industries, or a symptom of the onset of a period of severe depression and deflation?

One view runs something like this: Prices always decline sharply after wars. Furthermore it has been our experience that within 15 years after the end of the war prices have reached the prewar level or below.

For at least two years someone or other has been forecasting that a drastic price decline and business recession were imminent. Because the price decline has been so long delayed, such forecasters have been somewhat discredited. Other people have taken the view that we are now in a new era in which there is no need for a price decline to follow a price inflation. Then too, there is always a tendency for any group which has prospered abnormally over a period of years to get to thinking, "Now this is the way things should be. This is normal. This should be permanent." Perhaps they even think, "Now we are really getting somewhere, but we should be better off. Things will improve still further."

Accompanying every major war of the United States, there has been a price inflation which was followed by a sharp decline in prices (Fig. 1). This was true of the War of 1812, the Civil War, and the first World War. Not only have prices always declined sharply after wars but there has been a long-continued downward tendency, which sooner or later has brought wholesale prices down to their prewar levels or below. Thus, following World War I, about two years after its close, prices broke sharply. After a few months of demoralization, they were approximately stabilized for a period of years at about half again as high as the prewar level. But this level was not maintained. Prices broke again in 1930, and

¹ Talk prepared for the Winter Meeting of the Illinois Society of Farm Managers and Rural Appraisers, February 11, 1949, at Urbana, Illinois.

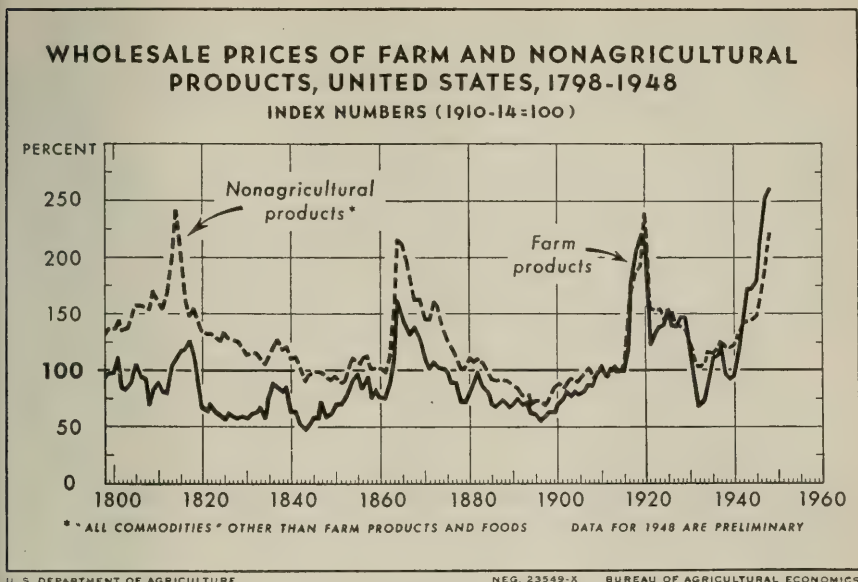


FIGURE 1

the decline culminated in the depth of a depression at levels averaging below those which prevailed prior to the war. Is this the sort of pattern prices again will follow?

The price declines following wars in the United States are largely the result of maladjustments caused by the preceding inflations and by other wartime conditions. Similar price declines have followed major wars in England and a number of other countries. Nevertheless, that pattern of postwar price change "does not represent the universal experience of all countries. France is an example (Figure 2). In that country prices rose from 1914 to 1920 in a manner somewhat similar to their course in the United States, except that the rise was very much greater. The yearly average for 1920 was approximately five times instead of double the pre-war level. In France, as in the United States, a decline followed which brought prices to a low in 1922. But in France the 1922 average instead of being about 40 percent above prewar was about three and one-half times the prewar level. This was followed by a new period of inflation which reached its peak in 1926. Then, after a slight price decline, there was a three-year period of stability before prices began the decline of the early 1930's. They declined steadily from an index of 645 in 1928 to a low of 338 in 1935. Thus, the second postwar price deflation in France was more severe and continued longer than in the United States, but even at the low

in 1935 wholesale prices in France were more than three times as high as in 1913.

Belgium, Czechoslovakia, and Italy all had price movements somewhat

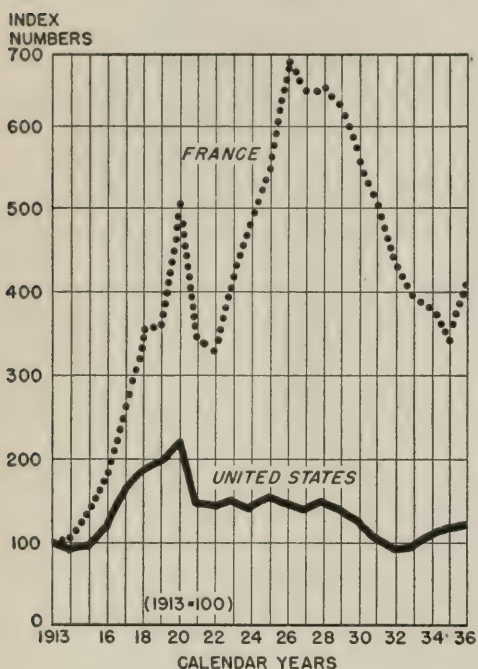


FIGURE 2
INDEX NUMBERS OF WHOLESALE PRICES, U. S.
AND FRANCE, 1913-1936. (1913 = 100)

The greater rise of prices in France than in the United States from 1914 to 1920 was due primarily to the greater currency and credit inflation in that country. The rise of French prices during the middle 1920's was the result of renewed deficit financing through bank credit expansion and of the declining value of the French franc in terms of other currencies.

It is possible that the United States Government may return to deficit financing in order to pay the costs of rearmament, European aid, or of price supports and unemployment relief. If that is done, and a considerable part of the deficits are financed through commercial or Federal Reserve Bank purchases of government securities, we will have a renewed source of price inflation. In the absence of such a renewal of credit inflation, however, our price level is unlikely to follow the French pattern of the 1920's.

similar to that of France. In China, Spain, and some other countries price changes were very different from those of the United States and England, even though they did not follow closely the pattern of French prices.

This should be sufficient to indicate that price changes after wars do not necessarily follow the pattern which we have become accustomed to thinking is typical. I do not expect that the course of the price level in the United States, during the next few years, will duplicate what happened from 1920 on in either the United States or France. But I do think that it will come closer to following the United States pattern than the French pattern of the 1920's.

Some have suggested that the price decline now underway is nothing more than the reaction to our large harvests of last summer, but the decline has been too great to be only that. Furthermore, there are many other indications that the time is ripe for a reaction to some of the price and production maladjustments associated with several years of inflation.

The price decline did not follow World War II as promptly as it did World War I for a number of reasons. In the first place, price inflation itself was delayed during the recent war by direct price controls, rationing and allocations (Figure 3). The originating cause, credit inflation, was there; but prices themselves were restrained. It was not until after World War II was over that wholesale prices of farm products had risen as much as they had by the end of 1917. Industrial commodities had risen less than 25 percent by the close of World War II; whereas during World War I they had increased by more than 50 percent before the United States even entered the war. Even wage rates rose more slowly during World War II than during World War I. With most of the price inflation delayed until after the war, the reaction to inflation was also delayed.

Another factor was the longer duration of the war and especially the longer period of participation by the United States. This resulted in a greater need for renewal of capital equipment and of durable consumers' goods. Automobiles provide one of many examples.

WHOLESALE PRICES OF WORLD WARS I and II

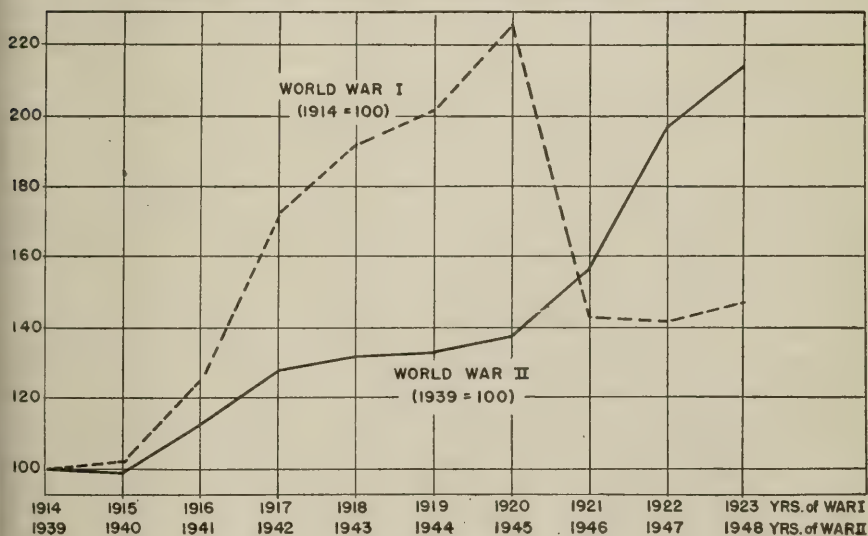


FIGURE 3

Some people have expressed the opinion that we are living in a new era in which we have a better understanding of the forces which cause depressions and deflations and in which people are more progressive and willing for the Government to undertake the measures necessary to prevent deflation. There is a point to this argument. Nevertheless, if you ask, "Have any of the basic causes of depression and price deflation disappeared?" my answer would be "No."

Perhaps the instability of money and credit conditions has been lessened. There is no prospect that bank credit or our currency supply will have to be restricted in order to maintain minimum legal reserve requirements as was the case in 1920. The Federal Reserve System has had a longer period of experience in its attempts at controlling our banking system. Then too, the role of the fiscal operations of the Federal Government is a far more important factor in our economy than it was 30 years ago. But this does not necessarily mean that we shall have fiscal policies which will contribute more to stability than did the policies of the early 1920's. Our recent price inflation can be laid directly to the door of an inflationary fiscal policy of the Federal Government. Can we count on future fiscal policies contributing to stability rather than to deflation or to inflation? What happens to the federal debt and more particularly to bank holdings of government securities will provide the answer to this question and will largely determine the future trend of our price level.

Changes in the production of durable goods are primarily responsible for our business fluctuations. Since the war, even after account is taken of the increase in population and changes in techniques, the durable goods industries have been operating at a higher level of output than following World War I. We may consequently expect that once we have made good the accumulated deficit in building construction, machinery, automobiles, etc., there may well be an even greater decline in the demand for such products than there was in 1920-21. Such shifts of demand combined with economic frictions are a principal cause of depressions and deflation. I see no evidence that these economic frictions — including price rigidities — are becoming less severe.

Let us now turn to some of the ways in which our present situation clearly differs from that of 1920. In that year peace was pretty thoroughly re-established. There was then no thought that one of the major victorious powers might start a war of aggression against its former allies. We did not then consider the production of armaments necessary to the preservation of peace. In contrast, our expenditures for armaments were large in 1948 and prospects are that they will increase in the next two years. This may be expected to be a powerful factor tending to prevent any considerable recession in business activity and tending to check the downturn in prices which has been in evidence during the past few months. Agricultural

price supports and the stronger position of labor in maintaining wage rates will tend to maintain prices directly, but may have an adverse effect upon business activity.

Private expenditures for durable goods, especially the purchases for producers' plant and equipment, are prone to be influenced greatly by changes in business sentiment. Whatever one's political persuasion is, it is no more than realistic to note that a large sector of the business community has become very uneasy about future prospects for profits from new expenditures on plant and equipment. This is partly an outgrowth of the result of the elections in November. On the other hand, of course, many other businessmen see no occasion for alarm or even for adopting a cautious policy. Changes in business confidence may be expected to be a major factor in determining the scale of expenditures for new durable goods during the next two years.

Any period of price inflation is bound to set in motion powerful forces which, sooner or later, tend to reverse the direction of prices. Although a continuation of money or credit inflation to finance the government can contribute to price inflation for an indefinite period and to almost any degree, I know of no occasion where a price inflation has been brought to an end without at least some deflation following within a very few years. In the absence of renewed deficit financing by the Federal Government, we may expect that the general level of prices will decline considerably further than it has thus far, but not as much as in 1920.

The price declines which have occurred to date (Feb. 17, 1949) do not represent depression conditions. Farm products, the group which has declined most, is still above the general average of wholesale prices. In spite of the declines of the past year, farm product prices are but little below the peak of 1920. While the farmers of Illinois are among those who have been most affected by the declines, they are also among those who benefited most from the inflated price levels.

E. J. WORKING

BULLISH AND BEARISH FACTORS IN LAND PRICES¹

Farm land and buildings in Illinois were selling recently at prices per acre almost exactly the same as in 1920 when the state average was \$187.59, thus far an all-time high. The capital represented by land and buildings in an average Illinois farm is about \$29,000, at least \$4,000 more now than in 1920.

Counting corn at \$1.45, wheat at \$2.35, and soybeans at \$2.40, the number of bushels required to buy an acre of Illinois farm land, with its

¹ Abstract of a talk given at Farm and Home Week, University of Illinois, February 1, 1949.

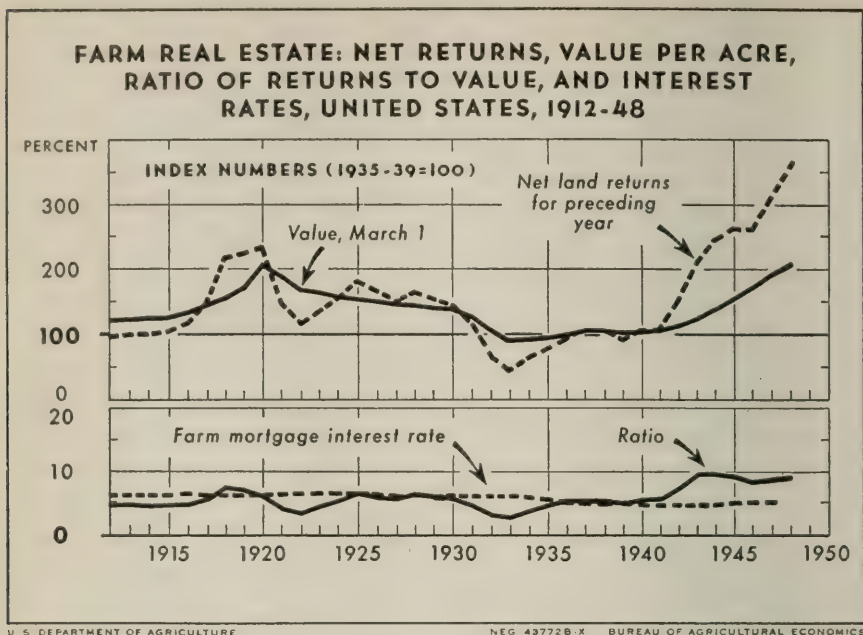


FIGURE 1

complement of buildings, when compared with ten years earlier, is still less than 75 percent as high in corn, and less than 65 percent as high in wheat and soybeans. In like manner, a monthly wage worker on an Illinois farm would have needed to save all he received as wages in three or four months to buy an average Illinois acre in 1912-17, but he can now pay for an average Illinois acre with his wage income of five to six weeks.

In Illinois, as in the United States as a whole, not all the high wartime and early postwar net land returns were accepted as permanent by land buyers in computing what to offer for land (Fig. 1). The cushion of conservatism is not so deep, however, that reduced net income in 1949 and 1950 could bring anything other than lower land prices.

In the *Appraisal Journal* for January, 1949, Dr. Sumner H. Slichter, of Harvard University, criticized the view of 62 non-government economists who responded to a questionnaire of the Farm Credit Administration asking whether the price level of the period 1956-1960 will be higher or lower than the period 1946-1950. Their view was that prices will be slightly lower in the five years ending in 1960. Dr. Slichter stated that these economists failed to take into account important basic changes. He cited seven factors likely to keep prices high as follows:

1. Peacetime military demands are becoming greater.
2. Raw materials are getting scarcer.
3. Governments have more power to fight price decline.
4. People continue to be less self-employed.
5. Government debts bid fair to remain high.
6. Private capital now has less effect on money supply.
7. The trade union movement is so strong that employers about to introduce labor-saving devices must expect to pay wages so high as to leave little opportunity to make prices lower for consumers.

In most of these seven points we see a great deal of force. On some points, however, skepticism is in order.

The power of governments, by regulation and by direct participation in the markets, while a strong influence on prices, is not decisive.

Perhaps one person in five is now self-employed. Employers of workmen are likely to slacken output when prices are low, but, even so, administered prices may be hard to maintain in some lines.

Government debts are heavy. Royalties on power and other benefits from nationally fostered research can cause this "old man of the sea" to become a lighter burden.

Output per man hour in non-agricultural industries has been increasing about two percent a year. As research results are applied, this rate may become three or more percent a year. Will labor unions push up wages faster than technological progress raises output per man hour? If so, prices to consumers will have to be advanced to prevent unemployment. Would perpetual price advance discourage saving by individuals?

If individual savers go on a strike, corporate savings plowed back into the business may be all the more necessary. Only about six percent of personal incomes after taxes have been going into personal savings. Of the capital needed by corporations to replace and enlarge their plants, 1910 to 1929, nearly 40 percent was "plowed back" from their own earnings, and in 1947, according to Dr. Slichter, the retained profits of corporate industry were twice as large as the net new security issues.

Personal savings have been absorbed largely in buying homes, in increasing the size of farms and in providing the expensive equipment to operate them. In 1947, Dr. Slichter points out, 4.8 billion dollars went into the purchase of non-farm residences, and 3.5 billions of personal savings went into plant and equipment on farms.

Demand for more new capital than corporations can plow back seems imminent. Unless more capital is forthcoming, high interest rates will lead to higher capitalization rates and lower prices for farm real estate.

Some costs tend to underpin the high postwar prices of town dwellings

and other new urban structures but to weaken prices for farm land. Freight charges on lumber that must come in considerable proportion from the Pacific Northwest or other remote areas are examples. Freight charges have advanced on shipments by rail, truck, and water. Sticky high freights serve as a wedge to drive up prices of things farmers buy and to drive down the prices of things farmers sell. This effect was felt for over a decade after May, 1920, and may be felt again.

To the employing farmer high wages, when sustained beyond the high tide of prices received for farm products, are like high freight and other high costs of movable marketable items.

Theorists who see prices tending upward for many years seem to hold out a prospect for heavier demands for food by populations that increase at home and abroad. Some of these "ramp" theorists go so far as to say that farmers and foresters in the future will have to be paid for annual growths of products from which will come alcohol for motor fuel, and for artificial rubber.

On the other hand, those who emphasize the tidal movements in real estate prices, see in mechanized agriculture costs of operation that are stubbornly high.

It is unlikely that a third world war would bring to producers of farm products in this country opportunity for enlarged export. Motor fuel would be in heavy demand outside of agriculture. Motor fuel might easily become so short in supply as to shut down mechanized production in all but the more highly productive core of each farm belt. It is not likely that the land market could be steady through a third world war, even if the struggle were to move with favor to our cause from the start. Only after conquest of the Eurasian land mass and an era of shrunken stomachs and pocketbooks could a normal trade in farm products be re-established and land prices react favorably.

Those who foresee no long continued upward movement in prices of farm products do not have to include revolutionary effects from atomic energy to see that prices of farm products may be pulled down for a generation. Such effects would be intensified, however, if artificial production of carbohydrates, for example, were to become practicable. Cheapened costs of fertilizers, of metals for farm implements, of water for crops, all may come in this way. If results of these kinds are primarily in North America, they can favor our land prices. There is a meaning for the future of American land prices in the probability that the impending revolution in energy seems likely to lead not only to low-cost operation of machinery on farms in North America but to low cost of machines and fertilizers which may be had for use by producers anywhere in the world. Since many of these foreign users have been content with yearly returns

less than our least rewarded farmers have had opportunity to receive, we may expect to see cheap products sold by competing producers a continuing factor.

Conclusions

1. Improvements that are structural, roofed and otherwise, are likely to have absolute dollar values per farm that will be larger for years to come, and their power to remain less diminished than the price of so-called bare land, or even to gain when bare land prices take a decline is not to be underestimated.

2. In land areas where larger acreages per farm continue, making some sets of buildings surplus, the town demand may suffice for at least a few more years to give temporary boost to the dollar values of rural dwellings and associated buildings.

3. Increased demand for land to rent is in prospect for another year or two. Rents expressed as a fixed amount of cash per acre or a fixed amount of produce per acre are likely to rise, and rents expressed as shares may continue to show bonus factors such as absorption by tenants of real estate tax payments. Rents are likely to be less diminished than bare land prices.

4. Bare land prices are likely to drop about 20 percent by 1953. November, 1949 prices for land will not, in my opinion, be as high as those for November, 1948. The balk in land price advance I expect to see credited or charged to a combination of factors, including (a) high real estate taxes; (b) rates of return on alternative investments for some time to come — shares more notably than bonds — to make lowest rate loan funds on farm land security hard to get; (c) reduced net returns to farm operators and to owners, especially those in debt.

5. In longer view, the economic position of Midwest farm land relative to land in all farms is likely to be stronger. Moves for 100 percent conservation can be expected to proceed with less waiting for special governmental credit in this belt. Freight charges will hurt the Midwest less than areas requiring longer haul. Level land served by humid climate which is not subject to frequent prolonged drouth stands to have increased relative advantage in price as compared with land less favored.

6. Except as the nation gets involved in a shooting war or an equally costly cold war, the tide of inflation should subside as the arts of production in agriculture and industry continue to be applied in the light of demonstrations made during the second world war.

7. Operators and owners of Midwest farm land have more than a vague curiosity as to what fission research may be opening up. Cheap power on farms may be preceded by cheaper products of industry reaching

farmers; better animal and plant control may come before artificial photosynthesis brings a revolution in feeds and fodders; cheaper ocean transportation for exporting countries and cheaper farm machinery for other countries as well as our own probably mean for the period from about 1950 to 1980 another downbeat in the general average of prices.

C. L. STEWART

AGRICULTURE AS AFFECTED BY FOREIGN POLICY¹

The United States cannot afford to enter upon any program affecting our world relations without careful weighing of the consequences. We are now the world's leading power. Perhaps we did not seek or aspire to that position. Nevertheless, there is where we are. The world looks to us for leadership. Either we continue to seek effective ways of international cooperation or we turn our back on the rest of the world. If we do the latter, other countries are going to do their best to crawl into their own storm cellars. Economic nationalism again will run rampant. We may try to turn our back on the world but with modern transportation and communication it is impossible for us to isolate ourselves. If we are to avoid a "stab in the back" we must build ourselves strong armor. We must use resources for defense rather than for better living. If war should come, what assurance have we that we would be victorious even if armed to the teeth? We certainly would hope to be victorious if another war breaks out. But even so, the cost would be well nigh unbearable. Nor is that cost one that can be measured only in terms of money, men and other resources. It also has to be measured in terms of dangers to our civilization and our ways of living.

Clearly, the modern world is such that we are in it and cannot escape living with it. How well we live depends in no small measure on how well the rest of the world lives. We have a vital concern with world productivity, living standards, political and economic stability and peace. Every American needs to be aware of his concern with and interest in the outside world. Every American should study the problems involved and should do his part to see that foreign policies which really serve our best interests are adopted by our country and by its example and leadership accepted by other nations of the world. Only if we do this can we build the better world which we are so anxious to leave to our children.

The United Nations was evolved to develop international cooperation to solve problems and help keep the peace. It has not yet produced the

¹ Abstract of a talk given at Farm and Home Week, University of Illinois, February 1, 1949.

results we hope for but there is no way to go but forward because a modern world without international cooperation is unthinkable. One of the greatest stumbling blocks, of course, is the present behavior and attitude of the USSR and its satellites. It is difficult for you and me to satisfy ourselves regarding the motive back of such actions. If the obstructionist's tactics arise from fear of us we may hope that they will diminish as our actions make clear that our aim is that of achieving world cooperation, not domination. If, on the other hand, it springs from a deep seated desire on their part to bring the entire world under the sway of communism, the problem is much more serious. The former can be met through cooperation; the latter involves resistance on our part. It is difficult consequently to see any escape from a strong defense program until the issue clarifies.

It is this situation which leads us to devote an abnormal share of our resources for defense purposes. While the activities associated with this may appear to be a source of stimulus to the economy, they are in effect a burden which cannot help but interfere with the attainment of levels of living otherwise within our grasp.

The program to assist in bringing about economic recovery in Europe has been embarked upon by our country as an effort to help put some other countries back on their feet. It rests on humanitarian grounds in no small measure. This feature of it has led to some grumbling on the grounds that we are denying ourselves in order to provide relief for others. But the program is broader than that. It has a hard core of self-interest. Restoration of production and trade is important to the restoration of effective governments and to the development of conditions favorable to peace.

We need to be on guard ourselves lest we bend the program to serve our own domestic interests. Pressures develop to use the aid program as a way of disposing of surpluses or of helping certain domestic lines. These pressures may be expected to increase as supply conditions return to a more normal state. We should, however, keep the aid program operating along lines where it will serve the aim of restoring other economies rather than becoming the means of dumping our surpluses.

The aid program is a drain on our resources. It would be a mistake to view it otherwise. We appropriate dollars for it but what we actually ship out is goods not dollars. This is true even when these funds are employed to buy supplies elsewhere. Dollars thus employed come back into our markets as demand for goods. It is a drain which we cannot justify over a period of time except as it brings returns in terms of world improvement and stability. To the extent it does this, it represents an investment.

Trade is one of the important forms of international cooperation and

in the development of our own trade policies we had better make certain that we do that in the light of our broad world interests rather than merely in terms of certain special group interests here at home. Narrow economic nationalism has no place in the program of a nation which is compelled to play the role of a world leader. This point is inadequately appreciated by Americans.

Outright demands for restrictions on imports to benefit domestic producers are not too difficult to identify as evidences of economic nationalism. Those who are awake to the interests which this nation has in a healthy international trade and in effective international cooperation to maintain the peace recognize the conflicts involved. The situation is less clear in the case of some other developments which we need to note.

Reference was made previously to the importance in connection with the European aid program of not yielding to the temptation to employ this program as a device for getting rid of surpluses which may press on our markets rather than to use it as the greatest possible aid to economic recovery overseas. If we should let our surpluses rather than Europe's needs determine what we are going to ship then we would apparently be acting as the USSR has been telling Europeans. They have made quite a play on the idea that our program to aid Europe is in fact one of trying to bolster our domestic economy. We ought to make clear by deed as well as word that this is not the case.

The requirement that a certain share of the goods supplied under the recovery program be carried in American ships may seem entirely appropriate on the surface because we are paying the bill and therefore we have the right to say how the money is to be spent. However, if this arrangement gives our ships an advantage and provides them with a larger share of the business than they otherwise would have it reduces one of the means by which European nations can earn dollar exchange by which to reduce their dependence on us.

Whether we want to employ a program of price supports for farm products may appear to be a question which is entirely domestic so that we are free to do as we may desire without any objection from any other country. A program to maintain prices above those which would otherwise prevail in the market will run contrary to international cooperation. There is a definite conflict between such a program and that of expanding international trade. Unless this is recognized, we may find that we are trying to employ programs which in fact are inconsistent. In such circumstances, of course, both programs cannot prevail. No one has yet discovered how to ride two horses running in opposite directions. A choice has to be made.

It may be in order to indicate briefly why this is so. If supports keep prices in this country above levels which the market otherwise would establish, will we be willing to let other countries ship products here to take advantage of the higher prices? Naturally we will not. Instead, steps would be taken to raise barriers against imports in order to safeguard support levels. In short, high supports invite increased trade barriers and consequently interfere with the development of international trade.

Nor is that all. If prices are supported above market levels, farmers will be encouraged to expand output and the market will tend to be ready to absorb less. The result will be surpluses. Perhaps these can be curbed by controls of production but, if so, the measures employed will have to do a much better job than has been done by government programs to date. A comforting belief is that the world is eager and anxious for our supplies and that if surpluses develop all we have to do is to export them at world prices or at bargain rates if need be.

But if we do this, it will be still more certain that our bars to imports will be raised. Surely we would not ship out products in order to hold up prices here at home and then let those products come back to our shores to share in those prices. Nor does this involve only the products themselves. It also includes products into which they may be manufactured. Thus, if we ship out cotton in order to maintain higher prices at home, we not only would restrict imports of cotton but also imports of cotton goods. In the case of foods, the stage will be set for manufacturers to argue for added protection against the advantage which their foreign competitors obtain from such a program.

In addition, the selling of products in export trade at lower prices than those maintained at home is known as "dumping." It is not necessary that we sell below the world level to engage in dumping. The test is whether the sales are at prices below the domestic level. What of this? Surely, no country ought to object to getting bargains but they do. The United States, for example, has restrictions against dumping of products in our markets by other countries. Similar restrictions are invoked by other countries against us. Why? Because domestic producers regard such supplies as being unfair competition. Such programs consequently would make it harder, not easier, for us to carry on foreign trade.

O. B. JESNESS¹

¹ Chief, Division of Agricultural Economics, University of Minnesota.

H. P. Rusk

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	74	51	58
1933.....	66	51	57	94	67	68	75	69	54	69
1934.....	75	65	76	100	79	73	74	80	70	75
1935.....	80	79	102	101	89	86	85	86	80	87
1936.....	81	81	105	100	105	109	110	101	93	103
1937.....	86	86	118	104	111	116	112	107	111	113
1938.....	79	69	90	98	96	107	109	100	85	89
1939.....	77	65	84	97	99	107	110	107	100	109
1940.....	78	68	89	98	105	114	116	115	114	125
1941.....	87	82	112	103	140	146	140	138	168	162
1942.....	99	105	141	117	193	200	169	175	245	199
1943.....	103	123	165	127	244	241	190	216	334	239
1944.....	104	124	165	132	255	240	182	240	346	236
1945.....	106	128	171	136	270	248	182	248	293	203
1946.....	121	148	204	151	308	302	200	254	266	170
1947.....	152	181	265	181	378	386	213	281	324	187
1947 Nov....	160	188	281	188	491	501	267	292	353	192
Dec.....	163	197	297	191	425	474	248	296	366	192
1948 Jan....	166	199	310	196	383	434	222	297	359	193
Feb.....	161	185	263	194	276	289	149	296	354	194
Mar.....	161	186	272	193	285	304	157	296	358	191
Apr.....	163	187	278	195	308	328	168	295	347	188
May.....	164	189	276	195	313	330	169	296	347	192
June.....	166	196	292	196	360	368	188	302	359	192
July.....	169	195	297	196	404	479	245	304	360	186
Aug.....	170	191	289	196	409	329	168	308	375	191
Sept.....	169	190	285	195	471	333	171	309	319	192
Oct.....	165	184	255	195	558	550	282	310	382	195
Nov.....	164	181	239	193	497	443	229	310	...	195

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			Jan. 1948	Current months, 1948-49		
	1935-39	1947	1948		November	December	Jan., 1949
Corn, bu.....	\$.66	\$1.90	\$1.80	\$2.57	\$1.19	\$1.23	\$1.26
Oats, bu.....	.31	.97	.94	1.32	.74	.76	.74
Wheat, bu.....	.86	2.45	2.23	2.94	2.12	2.18	2.14
Barley, bu.....	.62	1.59	1.58	2.00	1.30	1.32	1.33
Soybeans, bu.....	.90	3.28	3.20	4.24	2.41	2.40	2.31
Hogs, cwt.....	8.52	24.50	23.86	27.40	21.50	21.30	20.60
Beef cattle, cwt.....	7.88	20.48	24.49	23.00	21.80	20.70	20.50
Lambs, cwt.....	8.36	21.31	23.44	23.40	22.40	22.90	22.50
Milk cows, head.....	58.00	173.33	194.17	185.00	200.00	210.00	210.00
Veal calves, cwt.....	8.66	23.08	27.24	28.00	28.20	27.40	27.70
Sheep, cwt.....	3.58	7.39	8.93	8.20	8.40	8.70	8.70
Butterfat, lb.....	.27	.69	.73	.82	.61	.64	.64
Milk, cwt.....	1.68	3.95	4.44	4.80	4.30	4.15	4.05
Eggs, doz.....	.19	.41	.42	.40	.52	.46	.39
Chickens, lb.....	.15	.27	.30	.25	.29	.32	.32
Wool, lb.....	.25	.42	.42	.42	.41	.42	.42
Apples, bu.....	1.08	2.72	2.33	2.50	2.65	2.80	3.00
Hay, ton.....	9.39	16.88	20.64	21.00	21.70	21.30	20.80
Potatoes, bu.....	.91	1.91	2.00	2.10	1.80	1.80	1.90

1-32 For sources of data in tables see October 1948 issue.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

ILLINOIS FARM ECONOMICS

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

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SOME GOVERNMENT PROGRAMS WHICH AFFECT MARKETING¹

We farmers over in Indiana have heard for years about the Farm and Home Week held annually here at Urbana and of its educational accomplishments. I am sure we had not realized the wide range of subjects discussed here. In fact it is doubtful if most farmers, such as myself, realize the extremely wide range of farm interests.

One of the major interests of all farmers is the price he will receive for his production in the market place. In fact, it is the return which he receives from his crops which will largely determine the extent of his interest in other subjects on the program here this week. Our Federal Government, recognizing the fact that farmers do not have an organization through which they can control either the prices received or those paid, has, since 1933, placed on the statute books laws designed to aid agriculture in securing a fair share of the national income. Under these laws certain farm programs have been developed. I wish to discuss some of those programs briefly and from the standpoint of the Commodity Credit Corporation.

Government programs of interest to us today fall, generally, into three groups: (1) Price support programs (2) Supply programs, and (3) Marketing research. Under the Agriculture Act of 1948 the Secretary of Agri-

¹ Talk given at Farm and Home Week, University of Illinois, February 3, 1949.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

culture is directed to support the price of certain commodities and may, if funds are available, support the price of others. Those which must be supported fall into two categories, basic commodities and Steagall commodities. The basic commodities are wheat, cotton, corn, rice, tobacco, all of which must be supported at 90% of parity through the marketing year for the 1949 crop or until June 30, 1950. Except for tobacco, the 1950 and subsequent crops will be supported at from 60-90% of parity, depending on the supply, unless acreage allotments or marketing quotas are in effect, in which case the support percentage shall be increased by 20% but shall not be greater than 90% of parity. The law provides that the support price on tobacco of 1950 and subsequent crops shall be fixed at 90% of parity for any year in which marketing quotas are in effect.

On the Steagall commodities the supports are somewhat different from those on basics. Hogs, chickens, eggs and milk and its products must be supported through December 31, 1949 at 90% of parity or the comparable price, after December 31, 1949 at any level from zero to 90%. There is a provision that if chickens or turkeys are supported, prices of broilers, ducks, and other poultry must be supported also. Edible dry beans and peas, turkeys, soybeans for oil, flaxseed for oil, peanuts for oil, American-Egyptian cotton and sweet potatoes marketed through December 31, 1949 must be supported at not less than 60% of parity or more than the level of support in 1948. After December 31 the support may be at any level from zero to 90%.

For potatoes there is a special provision. Potatoes harvested on or before December 31, 1948 and marketed before December 31, 1949 are supported at 90%. Those harvested after December 31, 1948 and marketed before December 31, 1949 may be supported at not less than 60% of parity or more than the 1948 support level. Potatoes harvested after December 31, 1949 may be supported at from 60 to 90% of parity. As you know, it has been announced that the 1949 crop of potatoes will be supported at 60% and growers are asked to plant a much smaller acreage. On all Steagall commodities the Secretary may require compliance with production goals or marketing regulations as a condition of eligibility for price support.

The Secretary may support the price of crops other than basic or Steagall commodities at any level between zero and 90% but such support is not mandatory. There is also a provision for special treatment of support for wool.

In handling support programs for the Secretary the Commodity Credit Corporation relies on loans to producers as the principal basis. These are generally non-recourse loans made at a price level announced by the De-

partment. In most cases loans vary by counties based on location and cost of transportation to market. In other cases a flat support price is used which is the same for all locations. Flat prices on a national scale have not been too satisfactory. During the past two years a new device known as the Purchase Agreement has been used to supplement the loan program. Under this agreement Commodity agrees to purchase a certain specified amount of the commodity from the producer at the support price if he desires to turn it to the Corporation, rather than sell in the market place.

We have also supported prices in some instances through purchases. Good examples of this type of support are flaxseed, potatoes, and some processed commodities such as dried eggs, dried milk and concentrated fruit juices.

Loan and purchase agreement programs are handled in the field through the P.M.A. State and County offices. Administrative costs of this program are paid by the participating producers through inspection and service fees and interest on loans at 3%. Our losses through bad loans have been negligible. We have turned back to the U. S. Treasury considerable amounts representing profits on loan programs. The accounting under the price support programs is handled in the P.M.A. Commodity Offices such as Chicago.

During the recent war and since, Commodity has had another major job — that of purchasing for export. These purchases are primarily for Army, the Occupied Areas and for E.C.A. countries. Purchases of bulk commodities are made through the four P.M.A. Commodity Offices located at Chicago, Kansas City, Minneapolis and Portland. Other commodities are usually bought by the Washington office and the accounting made through the field offices.

In purchasing for supply programs, Commodity is restricted by law to buying at a price not in excess of the market at the time of purchase. We have never bought on the futures market in Chicago. All of our buying has been done in the cash market from established merchandisers. Since all of the grain bought has been earmarked for export, we have usually contracted for grain delivered, in-store elevators, or F.O.B. vessels at Atlantic ports. This method simplifies our accounting and saves cost. Processed or packaged commodities are usually bought on a formal bid basis by the Washington offices. For the past several weeks we have had considerable difficulty in the export movement of grains because of strikes at ports during December and more recently because of a shortage of vessels. Unless more vessel space is made available, we may find it impossible to meet our export goals. At present considerable emphasis is being placed

on the exporting of feed grains. The Army is encouraging the building up of livestock numbers in the Occupied Areas and want to stockpile reasonable amounts of feed for that purpose.

Marketing research has become more important in the Department in the last few years. Even without a legal directive it would have been necessary to look for better ways of marketing, better transportation and more convenient and attractive packaging in order to carry out our goal of better living for all our people. We can expect that from now on, and far into the future, there will be a very real effort to increase the efficiency of our marketing system. This is especially needed in regard to perishable farm crops.

These government programs have undoubtedly had some effects. Although the chief factors affecting price will always be the supply of the commodity as measured against the effective demand, there can be little question but that the various price support programs plus purchases for export have been major influences on price. It would be hard to believe that the prices of wheat, corn and cotton would have been at recent levels without these programs. There was just too much in the show window to expect to maintain a fair price without this help. Another effect of these government programs has been in the narrowing of price fluctuations in the market. Loan programs enable farmers to hold back a part of their production at time of harvest and thus avoid gluts in the market with resulting low bids for the commodity.

Another important effect of support programs lies in assurance to consumers that farmers will continue to produce abundantly of the foods we need and that their prices will be reasonable. The thinking in the Department continues to swing more and more toward abundant production for all our domestic needs with some surplus for our neighbors. We are thinking more in terms of better distribution and better living than of efforts to restrict production. Production restriction is thought of as the last resort when all other measures have failed to be effective.

In guaranteeing abundant food for our people, it is necessary that we arrange to carry a large reserve of those commodities which can be safely stored. We do not want to be caught short of feeds again as we were following the short corn crop of 1947. Only a small part of our coarse grains is used as food. Most of it goes to produce meat and dairy and poultry products. We need to effectuate a program which will stabilize the production of those preferred foods, at fair price levels to farmers and consumers. We can secure that production only through maintenance of large reserves. If we carry reserves to tide us over any major emergency, we must have more storage on farms, in country elevators, and at terminal locations. Although the word "planning" is in disrepute as applied to the

Federal Government, I believe there must be a reasonable plan from that source if all of our increasing population is to be well fed and well clothed. Our national agricultural goal must be that of abundant production at fair prices for an abundant living for all.

GEORGE D. BRADLEY¹

**SHIFTS FROM SALE OF CREAM TO FLUID MILK IN THE
CHAMPAIGN PRAIRIE FARMS CREAMERY DISTRICT,
ILLINOIS, AND THE UNITED STATES, 1919-1944**

An increasingly large proportion of the milk produced in the United States is being marketed as whole milk rather than as cream. In 1919 only slightly more than half of the milk in the country (54 percent) was marketed as whole milk while by 1944 about four-fifths of the milk produced was sold in whole form (Table 1). In Illinois excluding the areas

TABLE 1. — CHANGES IN VOLUME OF MILK MARKETED AND PROPORTION SOLD AS WHOLE MILK BY CHAMPAIGN PRAIRIE FARMS CREAMERY DISTRICT, ILLINOIS, AND UNITED STATES, 1919, 1929, 1939 AND 1944

Year	Champaign Prairie Farms Creamery District		Illinois areas outside of Chicago & St. Louis milksheds		United States	
	Total Marketed		Total Marketed		Total Marketed	
	Millions of pounds	Percent sold as whole milk	Millions of pounds	Percent sold as whole milk	Millions of pounds	Percent sold as whole milk
1919.....	132	15	1,094	36	40,346	54
1929.....	220	32	1,825	43	65,603	58
1939.....	296	50	1,992	59	70,214	66
1944.....	313	66	2,371	74	82,934	79

of the Chicago and St. Louis milksheds² the increase in the proportion of total production sold as whole milk has been even greater than that for the country as a whole. In 1919 slightly more than a third of the total volume (36 percent) was marketed as whole milk compared with 74 percent in 1944. The relationship between the volume of milk marketed as cream and as whole milk is shown for the 77 Illinois counties and the Champaign Prairie Farms Creamery district for census years 1919-1944 in Figures 1 and 2.

In Central Illinois the shift from cream to milk has been even more marked. In 1919 only 15 percent of the total sales from the ten counties

¹ Director, Commodity Office, P.M.A., U.S.D.A., Chicago.

² The 25 Illinois counties within the immediate areas of St. Louis and Chicago milksheds were excluded.

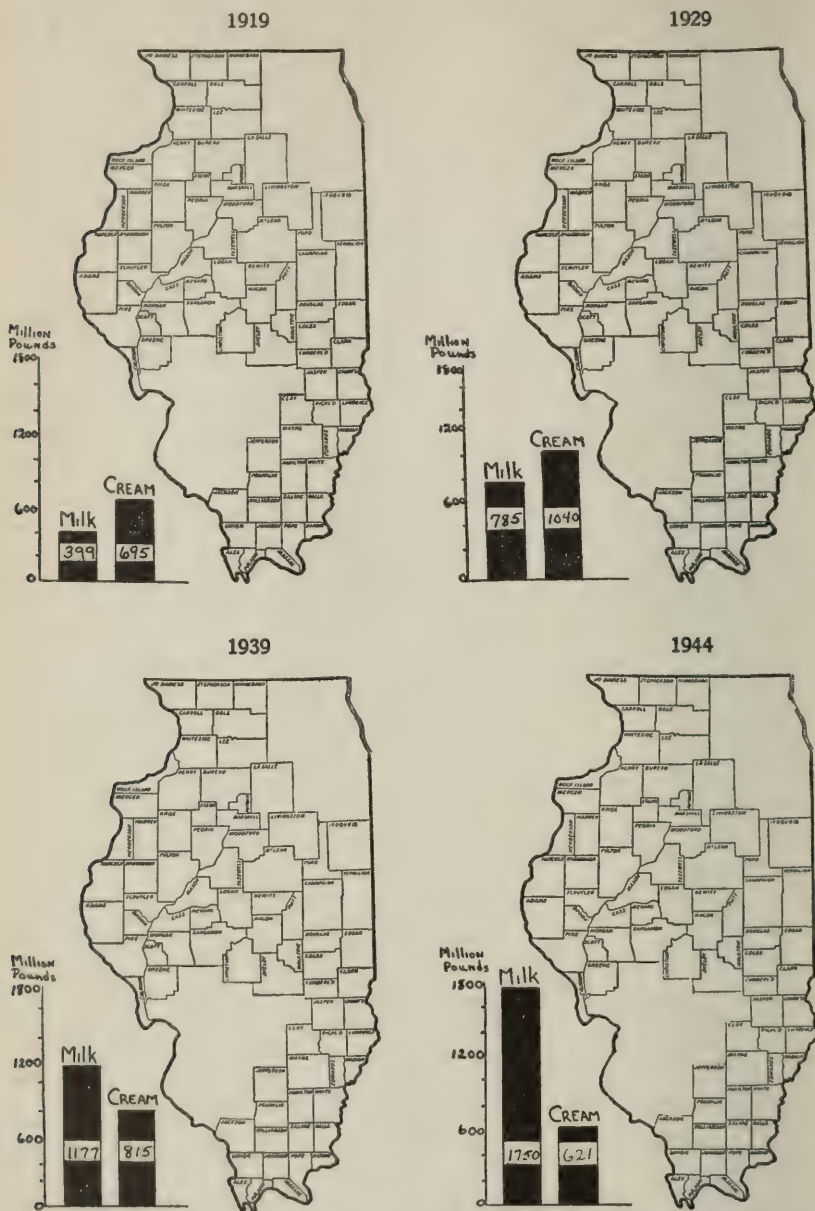


FIGURE 1. — VOLUME OF MILK MARKETING IN FLUID FORM AND AS CREAM (MILK EQUIVALENT) IN 77 ILLINOIS COUNTIES OUTSIDE THE CHICAGO AND ST. LOUIS MILKSHEDS, 1919-1944

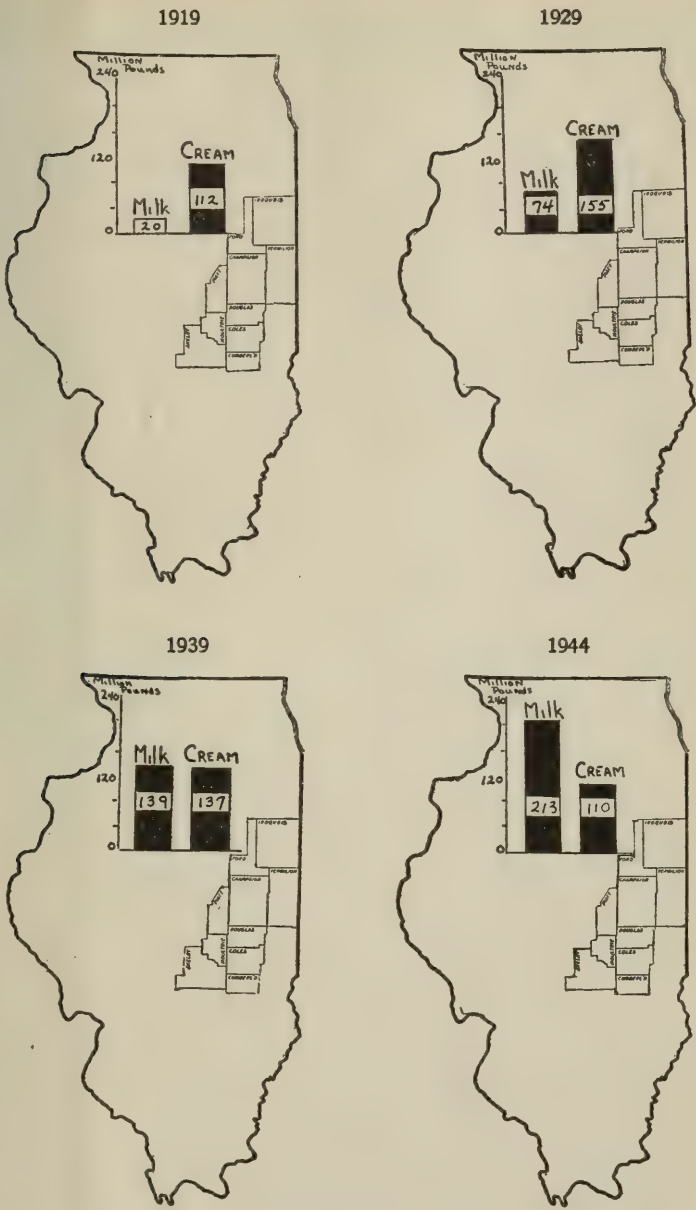


FIGURE 2. — VOLUME OF MILK MARKETING IN FLUID FORM AND AS CREAM (MILK EQUIVALENT) IN CHAMPAIGN PRAIRIE FARMS CREAMERY DISTRICT, 1919-1944

of the Champaign Prairie Farms Creamery district¹ was sold in whole form, compared to 32 percent in 1929, 50 percent in 1939, and 66 percent in 1944.

The shift from the sale of cream to the sale of milk can be attributed to: (1) the growing demand for market milk; (2) all-weather road construction; (3) the development of manufactured outlets for whole milk; (4) extension of markets through the use of paper containers and insulated tank trucks; (5) establishment of Grade A milk ordinances; and (6) widespread acceptance of soil conservation.

The growing demand for market milk. Several factors have contributed to the increased demand for fluid milk. (1) The normal growth of population has been a major factor in supporting the growth of the state's fluid milk industry. (2) Consumer income rose gradually from 1921-1929, then after a five-year break was again on an upward trend until 1946. From 1941 to 1946 consumer income, stimulated by wartime conditions, increased sharply while durable consumer goods which indirectly compete with milk for the consumer's dollar were disappearing from the market. These conditions resulted in a greatly increased fluid milk demand. Since the war milk consumption has fallen slightly but is still higher than before the war.

All-weather road construction. The rapid growth of improved roads in Illinois which permitted the establishment of milk pickup routes in the more remote sections of the state, has contributed greatly to the development of whole milk outlets. In 1924, 48,945 Illinois farms were located on all-weather roads, concrete, brick, macadam, asphalt or gravel. By 1929 all-weather roads had reached 68,347 farms. In 1945, 156,834 of the 215,000 farms in the state had access to all-weather roads.²

Development of dairy manufacturing industries which utilize milk in whole form. Cheese manufacturing and whole milk condenseries have expanded in recent years. In 1932 there were 85 plants making cheese in Illinois. By 1939 this number had increased to 131, and in 1943 there were 140 cheese plants in operation. Output per plant increased relatively more during this period than plant numbers. In 1932 the total output was 10,722,000 pounds as compared to 84,820,000 pounds in 1942.³

The condensed milk industry in Illinois increased faster from 1932 to 1942 than did the cheese industry. In 1932 there were 17 plants in operation with an annual output of 2,554,000 pounds. By 1942 the number of

¹ The ten counties included in this district are: Champaign, Coles, Cumberland, Douglas, Ford, Iroquois, Moultrie, Piatt, Shelby and Vermilion.

² United States Department of Commerce, Bureau of the Census, U. S. Census of Agriculture 1925, 1930 and 1945.

³ Mutti, R. J., Unpublished thesis, University of Illinois, 1946, pp. 94-96.

plants had increased to 30 and the annual output had grown to 66,438,000 pounds.¹

The development of these whole milk outlets was welcomed by dairy farmers of the state because in most cases they realized a greater return for the milk in whole form than for cream alone. Prior to this the principal alternative use for the skim milk left from separating the cream was for livestock feed.

Extension of markets through the use of paper containers and insulated milk tanks. The use of the paper container and insulated milk tanks for transporting milk have made possible the shipment of whole milk from the surplus-producing areas into the deficit-producing areas. Previously this milk had been utilized largely in the manufacture of butter and cheese. Intermarket shipment of fluid milk has made possible higher returns to the producer.

Establishment of Grade A milk ordinances. In recent years many Illinois markets have enacted Grade A milk ordinances. Assurance of a high-quality product tends to increase consumption of milk in whole form. The premiums offered for the production of Grade A milk are attractive to the producer and have encouraged him to meet the Grade A standards.

Soil conservation program. The widespread acceptance of the soil conservation practices in Illinois has led to a greatly increased production of pasture and hay. The dairy industry has benefited appreciably from the increased feed supplies although they were shared with beef cattle and sheep. These increased feed supplies account for a part of the increase in total milk production.

W. E. COLLINS

SLAUGHTER PLANT PROBLEMS²

There are two approaches, or points of view, to slaughter plant problems:

1. Operator considering building a plant.
2. Operator who has a plant.

The first party, that is, the operator considering building a plant should decide several matters:

1. Is a slaughter plant needed, necessary?
2. Why is it needed, to serve whom, in what volume?
3. What type, size, capacity of plant, equipment, minimum investment is necessary to do the job?

¹ *Ibid.*, p. 107.

² An abstract of a talk given at the session on Cold Storage Locker Plants, Farm and Home Week, Urbana, Illinois, February 1, 1949.

To those with a plant already in operation (in connection with a frozen food locker plant) the important factors are competent management, efficient operation, integration of slaughter and locker plant operation, economical operation, and volume of business. The last two are interdependent.

During the past year and a half the University of Illinois Agricultural Experiment Station has made a study of slaughter plant operations in connection with locker plants.

Data were obtained for 49 slaughter plant operations—28 in locker plants (attached operation); 21 in separate buildings (detached operation). Of the 49 plants 28 were privately owned, 21 were cooperatives.

For 14 of the detached plants total investment ranged as follows: under \$5,000, four plants; \$5,000 to \$24,900, two plants; \$25,000 to \$49,900, three plants; \$50,000 to \$74,900, two plants; \$75,000 to \$99,900, one plant; over \$100,000, two plants. Data were not available for other detached plants. Facilities ranged from a simple board shed to a complete modern plant.

The cost of machinery and equipment ranged from \$50 in the simplest outfit to \$26,000 in the most complete plant.

Of the 21 detached plants 6 had no chill room. A chill room is much needed unless the locker plant is located just next door.

Slaughter capacity. Daily slaughter capacity, as reported by plant managers, was:

<i>Number of Animals</i>	<i>Cattle</i>	<i>Hogs</i>
10 or less.....	29 plants	9 plants
11 to 20.....	17 plants	17 plants
21 to 50.....	1 plant	16 plants
Over 50.....	.....	3 plants
Not reported.....	2 plants	3 plants
None.....	.....	1 plant ¹

Actually these figures mean very little—the slaughter capacity varies with the ability of the men on the floor. For example, using the same plant and same equipment, two men dressed six hogs in eight hours while another two men would dress 30 hogs; one crew would dress 50 hogs in a second plant while another crew of the same size would hang up 200 hogs; two men dressed six cattle while one man from another plant would hang up ten, without any help.

Cooler capacity² is a definite measure of slaughter capacity, depending upon whether coolers are emptied each 24 or each 48 hours. Detached

¹ This plant had no facilities for slaughtering hogs.

² We assume cooler rails 36 inches apart; hog carcasses 18 inches apart and beef carcasses 30 inches apart, on the rails.

plants had these capacities: none, six plants; under 50 hogs, two plants; 51 to 100 hogs, one plant; 101 to 200 hogs, six plants; over 200 hogs, four plants; not reported, two plants. We figure cattle capacity as 60 percent of that for hogs.

Killing floor areas ranged from 56 to 2,552 square feet. Some plants have larger killing floors than are needed for their probable volume of operation.

Slaughter volume. For 1947 data on slaughter volume could be obtained from only 24 of the 49 plants (some had operated only a few months). Of the attached plants 16 averaged 361 cattle and 727 hogs; eight detached plants averaged 279 cattle and 545 hogs. Only three plants killed over 500 cattle, but one plant killed over 1,500 hogs.

Slaughter charges. Slaughter charges seemed relatively high though possibly not so in terms of 50 cent dollars. The charge for cattle ranged from \$2 to \$5 per head. Three plants took the hide in payment, one plant the hide and inedible offal. Charges for calves were \$1.50 to \$2.50 (one plant taking the hide as payment). Hog charges varied widely and are not listed here.

Hog slaughter. Of the 48 plants killing hogs 12 used dehairing machines, 23 used handscraping, and 13 skinned the hogs.

In order to compare slaughter efficiency, operations were timed — step by step — in 12 plants; four using dehairers, four skinning, and four handscraping. In each case total man minutes were divided by the number of head dressed, giving the number of man minutes required per animal. Time started when the animals were in the shackling pen, ended when carcasses were ready for the cooler.¹ For the four plants dehairing man minutes per hog were 72, 30, 29.9 and 24. In two small commercial packing plants the times were 12 and 11½ man minutes. For four plants scraping by hand times were 78, 58, 36 and 28 man minutes per hog (man minutes for scraping only ranged from 33 down to 16). Some plants were doing a faster job with handscraping than some plants with dehairing machines. For four plants skinning hogs times were 41.4, 40, 31.7 and 28 man minutes per hog (man minutes for skinning only ranged from 27.6 down to 6.4).

Man minutes to dress one head of cattle, checked in four plants, were 140, 63, 59 and 36.

In his book, "Meat Slaughtering and Processing,"² C. E. Dillon says:

¹ At many plants some member of the slaughter crew has to stop to receive live-stock, to list them, then to make out carcass tickets before putting the dressed animals into the cooler. This necessarily slows up killing.

² Published by Meat Merchandising, Inc., 105 South Ninth Street, St. Louis 2, Missouri.

"Unless you kill at least 50 hogs each day you are not justified in putting in a mechanical line." That is, putting in a dehairing machine.

In the same book the author says of skinning hogs: "Skinning a hog carcass prevents the proper smoking of bacon, shoulders and hams and causes serious shrinkage during the final smoking operation." Nevertheless, numerous locker plant operators favor dressing hogs by skinning.

Time ranges for specified hog dressing operations were found to be: 2-6 minutes in scalding tank; 1-2½ minutes in dehairer; 16-32 minutes (one man) for handscraping; ½-6½ minutes for evisceration; and ¾-2 minutes for splitting.

Sharp knives. In far too many plants employees on the killing floor were using dull knives or knives with sawtooth edges. It was apparent the men had never learned how to sharpen a knife properly.

In one plant the men were sharpening their knives on a coarse emery wheel, then steeling them. There was not a really sharp knife on the floor. And there was no oilstone on the floor.

In a second plant knives were sharpened on a very coarse small grindstone, then steeled. Again not a sharp knife on the floor, not an oilstone to be found anywhere.

In these two plants employees were wearing their knives out rapidly. But the knives were not sharp.

A few good references on knife sharpening can be had.

In one plant two men killed the hogs, scraping by hand. Each dressed his knives lightly on a fine grained oilstone, then steeled them, before starting to kill. While dressing 16 hogs the man doing the eviscerating stoned one knife lightly, once. The other man did not touch the stone. Their knives were steeled lightly several times.

Cleanliness. Cleanliness, sanitation, is a must in both locker plants and slaughter plants. Many plants are careless in this respect.

A flagrant disregard of cleanliness was observed where one employee, having finished cutting up a batch of meat and put it away, picked up a dirty floor broom, swept off the cutting tables, and then proceeded to sweep the floor. The cutting tables received no other attention.

Waste disposal. A major problem in slaughter plant operation is effective use of offal and satisfactory disposal of wash water and plant waste. The second question receives first consideration.

The State Sanitary Water Board is interested on two counts: 1. Water pollution, wherever plant waste drains into any stream; and 2. public nuisance, whenever or wherever the public files a protest against a plant's practice in waste disposal. More will be said on this question in the final report on this study.

As to disposition of offal, four plants gave it to farmers who hauled it away; two sold more or less of it for dog food; two cooked all of their offal; and the rest disposed of more or less of it to rendering plants.

One plant cooking offal draws off the grease, then feeds the wet residue to the owner's hogs. A very light-colored grease was being produced. No data were available as to quantities.

One plant cooked all its bones, scraps and inedible offal. The grease was drawn off. The wet residue was put into a drier, the blood added, and the product dried to produce a tankage. No weights were available but the operator's estimates for early December 1948 were:

Slaughter:

27 cattle	estimated 775 pounds each
132 hogs	estimated 264 pounds each
Total live weight 55,573	

Grease produced	estimated 2,700 pounds at \$.08 a pound
Tankage produced	estimated 2,800 pounds at .04 a pound
Total return	\$328.00

$\$328 \div 555.73 \text{ cwt.} = \$0.5881 \text{ per cwt. of live animals or } \$4.55 \text{ per head of cattle, } \1.55 per hog.

A third operator sold his offal to a rendering plant. Late in November and early in December he slaughtered two cattle and 79 hogs, average weights estimated as 775 and 264 pounds, as above — a total of 27,056 pounds live weight. He sold:

Raw fat	1,364 pounds at \$.06 a pound
Bones and hog hides	4,735 pounds at .02 a pound
Guts (estimated weight).....	2,600 pounds at ¼ cent a pound
Total return.....	\$184.04

This averages \$0.6765 per cwt. of live animals or \$5.24 per cattle and \$1.78 per hog.

In these two cases return from sale of the offal (including 79 hog hides), appeared to be slightly higher than from cooking it. If grease had sold for 11 cents per pound the return would have been higher from cooking the offal.

Many plants are careless in salvaging raw fat from the viscera. A few plants do it very well. One plant recovered an average of five pounds of raw fat for each 100 pounds of live weight (estimated) of cattle and hogs slaughtered.

At one plant, killing hogs, one man ran the guts as fast as a good operator could eviscerate and split the hog carcasses. Here the entire

mesentery went into the fat tub. He did a thorough job, using a knife only occasionally.

Some plant operators speculate as to the degree of active competition in the buying of offal. One operator learned that a neighboring plant was getting four cents a pound more for hides than he was getting (his men taking off as good hides as any plant in the state). He complained to his scavenger. One the next visit the scavenger reported with much apparent satisfaction: "We got that fixed. He is not getting four cents more any more."

Records. Only five managers said slaughter plant records were kept entirely separate from locker plant records; three said "partly separate."

Every manager needs to know, definitely and accurately, whether the slaughter business is paying its way; when he can safely reduce slaughter charges (should that become desirable, to attract more business.)

Adequate and accurate records are a necessity. In too many plants all records were inadequate, even nonexistent in a few cases.

Summary

There is a place for efficient slaughter operation in conjunction with locker plants. Success of the operation will depend upon:

1. Competent management.
2. Efficient operation (skilled personnel).
3. Effective integration of slaughter with over-all locker plant operation.
4. Economical operation.
5. Volume of business.
6. Effective utilization of offal.
7. Cleanliness.

R. C. ASHBY

MILK MARKETING — A DISCUSSION OF HIGGINS v. CITY OF GALESBURG

401 Illinois 87 (1948)¹

Facts. The city of Galesburg had an ordinance requiring that all milk offered for sale within the city be derived from licensed producers and that bottled milk offered for sale be bottled in a licensed plant located within ten miles of the corporate limits.

Higgins, a distributor in Galesburg, was refused a license and arrested because he handled milk produced by producers not licensed and inspected

¹ Abstract of a talk given at Farm and Home Week, University of Illinois, Dairy Marketing Session, February 2, 1949.

under the Galesburg ordinance. However, the milk he distributed (Roszell) was inspected under a Peoria ordinance and the quality of the milk was not in issue. Higgins sued to have portions of the ordinance declared void. The circuit court for Knox County upheld the ordinance and Higgins appealed.

Holding. The Supreme Court of Illinois held for Higgins, stating among other things that:

"The legislature has not delegated power to municipal corporations to pass a regulatory and license ordinance which assumes to regulate dairy farms or milk bottling plants outside their corporate limits.

"It does not follow that because the city has the right to regulate the sale of and inspect milk sold within its corporate limits it is empowered to license milk producing farms and milk plants in Peoria and elsewhere.

"Statutory authority for a municipality to require a dairy farm or milk plant located more than one-half mile beyond its limits to obtain a license or permit and pay an inspection fee is lacking."

Discussion. As a result of this decision certain questions arise. Some of these questions and possible answers follow:

1. May Illinois cities and villages license and inspect farm producers, handlers or distributors outside their legal limits? This case holds that they cannot, because the law limits their jurisdiction. It would seem to follow then that a municipality cannot require a distributor within its limits to distribute only milk that has been produced on farms licensed and inspected by the municipality, since it cannot legally license and inspect outside its limits.

2. May Illinois municipalities require that producers outside their limits send in periodic statements or check-lists from which fitness of the milk can be determined? Probably not — because it is still an attempt to regulate or control beyond the city limits, and the facts thus obtained would probably not be adequate to support a decision on fitness.

3. May a municipality license and inspect those producers who consent? Probably so, but if a producer does not consent, his milk cannot be kept out on that account, nor can the city prevent distribution of such milk by distributors or refuse to license distributors handling it.

4. Does this decision in any way curtail the right of a city to license and inspect within its limits (defined to include a one-half mile area around its described limits)? No. Under the revised cities and villages act a municipality has extensive authority to do anything reasonably necessary to protect the health, safety and welfare of its inhabitants. It may set up standards of purity, weight, measure, quality and analysis, with respect

to all items of food; prescribe sanitary standards for food handling or distributing agencies; and within certain limits control the location of such establishments. With respect to milk, it may take samples and test any milk bought within its limits, and if such milk in any way fails to meet the standards prescribed, it may be rejected.

A city ordinance may always be challenged in the courts, and when so questioned must meet the test of constitutionality as to reasonableness, and the test of validity as to authority under the cities and villages act.

5. May a municipality impose standards in addition to those prescribed in the State Grade-A milk law? Yes. This is implied from provisions in the cities and villages act, and is so stated in the Grade-A law itself. However, in view of the Higgins case, this authority cannot be construed as giving the municipality authority outside its limits, and any additional regulations adopted by it must not conflict with provisions contained in the State Law.

6. Can a municipality in an adjoining state inspect and license Illinois plants and producers if the law of the adjoining state does not limit the authority of its municipalities to their legal limits? Probably so. The Federal Constitution provides (Article IV, paragraph 1) that "full faith and credit shall be given, in each state, to the public acts, records and judicial proceedings of every other state." There are, however, at least two grounds under which their authority in this regard might be challenged: It might be argued that such authority is unreasonable and therefore unconstitutional despite the fact that it is contained in the law of the state; and it might be argued that though legal in the adjoining state, it is contrary to the expressed public policy of the State of Illinois, and that, therefore, Illinois may refuse to recognize its application to Illinois residents without violating the full faith and credit clause of the Federal Constitution.

7. If the regulatory power of an Illinois city is confined to its legal limits, are there other public corporations which may license and regulate milk plants and producers? Yes. There are at least three — counties, townships and public health districts.

In Illinois counties under the commission form of government, the Board of County Commissioners by law constitutes a board of health. The law provides that among others such boards shall have the power to "do all acts, make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease." This would seem to give such a board authority to license and inspect milk plants and producers within the county. The County Board in counties under township organization is not clothed with this same statutory authority, but pro-

vision is made for the organization, in one or in two or more adjoining counties of a department of public health, which may recommend to the County Board the adoption of "such ordinances and of such rules and regulations as may be deemed necessary or desirable for the promotion and protection of health and control of disease." Also, the law provides that the supervisor, assessor and town clerk shall constitute a board of health in Illinois townships, with the same powers and duties as the board of health in commission counties.

Unquestionably Illinois counties and townships have more authority, outside city limits, with regard to public health problems, than they ordinarily exercise.

Still another local agency with extensive power to license and regulate — within its legal limits — is the public health district. These may be organized to include variable political areas, both rural and urban, and are authorized when organized in an urban area, to take over from the city the administration of milk ordinances.

Conclusion

The present case is not the first instance in which the Illinois Supreme Court has made a similar interpretation of the territorial authority of a municipality under the cities and villages act. In *City of Rockford v. Hey*, 366 Illinois 526 (1937) it held that ice cream plants located in Sterling and Dixon could not be licensed under a Rockford Ordinance. However, that case also involved an undue delegation of authority to the city health commissioner, and is not as clear cut therefore as the present case.

The purpose of these city ordinances and of the State Grade-A law is to insure a safe supply of milk to Illinois consumers. Their purpose is not to limit the marketing of Illinois milk or confine any particular milk to a particular market. If reasonable regulations reasonably applied result in some such limitation then it must be accepted, because it is an unavoidable incident in the protection of health. A farmer, for example, cannot complain if his milk does not meet tests made in the city and if for that reason he is unable to sell it within the city; nor can he complain if his milk is kept off the Grade-A market due to his non-compliance with a State Grade-A standard regarding the condition of his barn.

Viewed objectively it would seem that adequate consumer protection and freedom of marketing can both be achieved if all regulation, licensing and inspection outside corporate limits is done by the State, operating under an adequate law and with a sufficient number of competent enforcement officers; and if all inspecting, control and testing within the city is accomplished by municipalities under adequate ordinances.

H. W. HANNAH

HOW WILL LOCKERS AND HOME UNITS AFFECT FOOD CONSUMPTION?

Livestock farmers everywhere are interested in the effect that the locker and home unit may have on the demand for their product.

The locker industry has made rapid growth since its start in 1936, also, the number of home freezers has grown rapidly in recent years. If this growth continues even at a slower pace, the demand (as expressed in terms of commodities purchased) of renters of lockers and home freezer users will be a factor in determining price relationships between the various meats.

In 1940 there were 567,960 rural families and 1,648,620 urban families in Illinois. Approximately 21 percent of the farm families in Illinois have lockers and only three percent of the town families have lockers, or when combined eight percent of the families in Illinois have lockers; another three percent have home units.

There are a number of potential customers for lockers both rural and urban; but less than one-half million rural customers and over one and a half million urban customers, so it seems reasonable to assume that there will be a greater tendency to expand the use of lockers in non-rural areas.

Sixty-two percent of the locker plants and 45 percent of the lockers in Illinois are in towns under 2,000 in population. About one-fourth of the Illinois towns in this size group have locker plants, while about three-fourths of the towns and cities over 2,000 have lockers. If all their lockers were used by urban people, the larger cities would have much less per-capita locker capacity. For example, East St. Louis with a population of 75,609 has one locker plant with 350 lockers. Chicago with a population of three and a half million has one locker plant with 2,500 lockers.

Farm families with lockers indicate consumption of meat increased after using a locker, but town families indicate consumption decreased after using a locker.

Over 60 percent of the farmers indicated their beef consumption had increased and two percent indicated a decrease. Forty-five percent of the town customers indicated an increase in beef consumption and six percent a decrease. In both groups about one-seventh indicated an increase in pork consumption and about one-third indicated a decrease.

Statistics on the number of hogs slaughtered for home use in Illinois indicates there has been a decrease in hog slaughtering and an increase in cattle.

Over-all per-capita consumption in the United States has shown an increase in the use of beef with a tendency for pork to work lower from the high of 1944.

If 20 percent of the urban families were using lockers and home units instead of the present four percent, the increase in demand for beef and the decrease in demand for pork could be appreciable. Pork does not maintain its original flavor while frozen as beef does. As the use of frozen meats becomes more generally accepted, will this have the general influence of increasing beef consumption and decreasing pork consumption? More and more this method of merchandising is being used.

These factors indicate a change in demand from pork to beef which could be substantial.

W. J. WILLS

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-1939 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

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TABLE A. — INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1926	1926	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39
1932.....	65	48	56	96	60	57	60	74	51	58
1933.....	66	51	57	94	67	68	75	69	54	69
1934.....	75	65	76	100	79	73	74	80	70	75
1935.....	80	79	102	101	89	86	85	86	80	87
1936.....	81	81	105	100	105	109	110	101	93	103
1937.....	86	86	118	104	111	116	112	107	111	113
1938.....	79	69	90	98	96	107	109	100	85	89
1939.....	77	65	84	97	99	107	110	107	100	109
1940.....	78	68	89	98	105	114	116	115	114	125
1941.....	87	82	112	103	140	146	140	138	168	162
1942.....	99	105	141	117	193	200	169	175	245	199
1943.....	103	123	165	127	244	241	190	216	334	239
1944.....	104	124	165	132	255	240	182	240	346	236
1945.....	106	128	171	136	270	248	182	248	293	203
1946.....	121	148	204	151	308	302	200	254	266	170
1947.....	152	181	265	181	378	386	213	281	324	187
1947 Nov....	160	188	281	188	491	501	267	292	353	192
Dec.....	163	197	297	191	425	474	248	296	366	192
1948 Jan....	166	199	310	196	383	434	222	296	359	193
Feb.....	161	185	263	194	276	289	149	296	354	194
Mar.....	161	186	272	193	285	304	157	297	358	191
Apr.....	163	187	278	195	308	328	168	298	347	188
May.....	164	189	276	195	313	330	169	300	347	192
June.....	166	196	292	196	360	368	188	305	359	192
July.....	169	195	297	196	404	479	245	307	360	186
Aug.....	170	191	289	196	409	329	168	311	375	191
Sept.....	169	190	285	195	471	333	171	313	382	192
Oct.....	165	184	255	195	558	550	282	314	382	195
Nov.....	164	181	239	193	497	443	229	315	378	195

TABLE B. — PRICES OF ILLINOIS FARM PRODUCTS¹¹

Product	Calendar year average			Feb. 1948	Current months, 1948-49		
	1935-39	1947	1948		December	Jan., 1949	Feb., 1949
Corn, bu.....	\$.66	\$1.90	\$1.89	\$1.90	\$1.23	\$1.26	\$1.12
Oats, bu.....	.31	.97	.94	1.03	.76	.74	.66
Wheat, bu.....	.86	2.45	2.23	2.21	2.18	2.14	2.02
Barley, bu.....	.62	1.59	1.58	1.83	1.32	1.33	1.15
Soybeans, bu.....	.90	3.28	3.20	3.03	2.40	2.31	2.06
Hogs, cwt.....	8.52	24.50	23.86	22.40	21.30	20.60	20.00
Beef cattle, cwt.....	7.88	20.48	24.52	21.60	20.70	20.50	19.50
Lambs, cwt.....	8.36	21.31	23.44	20.90	22.90	22.50	22.10
Milk cows, head.....	58.00	173.33	194.17	180.00	210.00	210.00	200.00
Veal calves, cwt.....	8.66	23.08	27.16	23.50	27.40	27.70	27.70
Sheep, cwt.....	3.58	7.39	8.93	8.90	8.70	8.70	8.50
Butterfat, lb.....	.27	.69	.73	.80	.64	.64	.61
Milk, cwt.....	1.68	3.95	4.44	4.75	4.15	3.95	3.75
Eggs, doz.....	.19	.41	.42	.40	.46	.39	.37
Chickens, lb.....	.15	.27	.30	.25	.32	.32	.30
Wool, lb.....	.25	.42	.42	.41	.42	.42	.41
Apples, bu.....	1.08	2.72	2.33	2.50	2.80	3.00	3.20
Hay, ton.....	9.39	16.88	20.64	21.00	21.30	20.80	21.00
Potatoes, bu.....	.91	1.91	2.00	2.20	1.80	1.90	2.00

¹¹⁻³² For sources of data in tables see preceding page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914

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EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

College of Agriculture · University of Illinois · Department of Agricultural Economics

G. L. Jordan, Editor

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PROGRAMS FOR YOUTH IN RURAL AREAS

Agricultural people, especially farm owners and independent workers, are among the most law-abiding groups in the nation. Rural community pressures produced by the close-knit farm family and the neighborhood school and church do much to shape the personality of the rural dweller into a law-abiding citizen. High moral standards in the farm community result in conservative attitudes, placing heavy responsibility on the family to prevent illegitimacy, non-support, and even drinking and smoking. Rigid customs and mores in the farm community force many "undesirables" to leave.

Rural areas, it is therefore thought, are freer of crime than urban areas. It is startling to learn, however, that recent trends have been for a greater increase in crime in rural than in urban areas. Federal Bureau of Investigation reports indicate, for example, that the crime total for rural areas has been rising whereas in urban areas it has been falling. Rapes, burglaries, and larcenies in rural areas show unusually heavy increases.

The normal trend of population movement is from rural to urban areas. This is because there are more children born in rural areas than can, when they reach adulthood, find profitable employment in rural areas. With increase in mechanization and the consequent increase in size of farms the tendency is for there to be a need for even a smaller proportion of youth reared in rural areas to remain than formerly. Yet were it not for the net migration of rural youth to urban areas the population of most urban places in Illinois, as elsewhere, would decline.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

The provision of constructive programs for youth in rural areas is therefore of concern both to rural and to urban areas. Though only 26.4 percent of the total population lived in rural areas in 1940, yet 31.1 percent of the children under five years of age, 31.3 percent five to nine years of age, 30.2 percent 10 to 14, and 28.9 percent 15 to 19 were reported as rural in Illinois by the 1940 Census. The differences are even more striking between the farm and urban populations. In 1940 the farm population was only 12.3 percent of the total. Yet it had 14.7 percent of the children under five years of age, 15.3 percent five to nine, 15.1 percent 10 to 14, and 14.6 percent 15 to 19 years of age. It is significant that the percentage in the 20 to 24 year age group was lower both in the rural-farm and the rural-nonfarm than in the total population in 1940, thus showing the movement to the city for this age group.

The highest incidence of delinquency is not always to be found in the larger cities. There are indications in reports from the Federal Bureau of Investigation that smaller towns contribute proportionately higher numbers to our penal and correctional institutions than any other type of community. These smaller communities ranging from 10,000 population and down are the ones that find it difficult to organize and carry out constructive programs for youth; and their youth when not in school or employed have very little to occupy their time and talents and thus find it easy to get into mischief. It may be interesting to note, therefore, that although only a fourth of the total population of the state lives in towns of 10,000 population and under, 95 percent of all centers in the state are 10,000 population or under; 71.7 percent are 2,500 population or under, usually classified as rural. Much needs to be done in places of this size to reduce delinquency and crime both in such areas and in the larger urban areas for, as stated before, the natural drift of population is from the smaller to the larger center.

Rural areas are by no means devoid of youth-serving agencies and organizations. Every community and almost every neighborhood have a school and a church. Schools enroll over two-thirds of the rural youth between five and 20 years of age. About one-third of the people and somewhat a lower proportion of the youth in the average rural community are church members. Besides the church and the school the groups best known to farmers are the farm bureau, the home bureau, the Extension Service in Agriculture and Home Economics with its 4-H and rural youth activities, and the various agricultural agencies. The Extension Service reaches about one-third of the rural-farm population over 21 years of age. Its 4-H club work with 49,000 members in 1948 reached approximately one-fourth

of the rural-farm youth between 10 and 19 years of age. The older youth program, called rural youth, which has been going only since 1936, includes about 12 percent of the rural-farm youth between the ages of 20 and 24.

These are the going programs for farm youth in Illinois: the school with its FFA and FHA; the church with its youth groups; and 4-H and rural youth through the Extension Service. Many towns have their Boy and Girl Scouts, YMCA, YWCA, and similar groups. It would seem we have enough youth organizations to meet the need. Our real concern is to extend them to the youth who need constructive activity — who for want of such programs become delinquents and the wards of the state.

Leaders of these groups are anxious to extend them. Sometimes the limiting factor is lack of local volunteer leadership. This is especially true of 4-H club work for without a volunteer adult leader there can be no 4-H club. Sometimes it is due to inadequate finances, for example, to hire a summer recreation director in a small community. Sometimes the lack is in cooperation among groups in a community. Effective interchurch cooperation with the school can almost completely erase delinquency from a community. Sometimes it is lack of knowledge on the part of a community as to how to make use of outside agencies and organizations.

These, then, are all elements that should go into a youth program for rural areas: The finding of enough volunteer leaders to meet the needs for organizing 4-H clubs, scout groups, and similar organizations; the development and support of a community program of activities for youth through the cooperation of the schools, churches, social clubs and agencies, service clubs, park boards and town governments; the effective use of service agencies and organizations to help start, guide, direct, finance, coordinate, train leaders for and carry through a good youth program in the community; and, probably as important as any of these, the enlistment of the help and self direction of youth themselves in the initiation, programming, conduct, support, and stimulation of these programs. Effective programs for rural youth can help reduce to a marked extent the problem of delinquency both in rural and in urban areas in Illinois.

D. E. LINDSTROM

A FARMER'S LIABILITY FOR INJURIES TO HIS EMPLOYEES

The question frequently arises whether a farmer may incur liability to a hired man or other laborer under the Illinois Workman's Compensation Act.¹ This Act makes certain employers generally responsible for

¹ Illinois Revised Statutes, Chapter 48, Sections 138-172.

injuries occurring to their employees during the hours of employment. It applies automatically to the state, counties, cities, towns, school districts, or municipal corporations, and to all employers who engage in an extra-hazardous business such as construction, mining, and laying out subdivisions. However, there is an *agricultural exemption* which provides that the Act shall not apply to any work, employment, or operation done by farmers, or to those who rent land for farming purposes, no matter what kind of work or service is being rendered.²

The exemption seems broad in scope but the Supreme Court of Illinois has placed the following interpretation on this provision:

1. The words "any work done on a farm or country place" must be limited by the context of the Act to mean work which is by its nature a part of farming.³

2. Persons employed to haul fertilizer to a farm, till farm land, lay tile, or hull clover, are engaged in farming.⁴

3. Where a farmer employed a carpenter to build a corncrib the Compensation Act was inapplicable since the farmer was not engaged in the business of building.⁵

4. A farmer who owns a large tract of timberland, operates a sawmill and sells lumber, is engaged in an occupation other than farming and the Compensation Act applies.⁶

The line is difficult to draw, but the law seems to be this: so long as a farmer does not engage in an occupation divorced from farming but only hires his building, tiling, and painting done, he will not come under the provisions of the Act. There is a section which allows a farmer to elect to come within the provisions of the Act thus making it easier for his employees to recover; but the amount which an employee could then recover would be limited to the amounts set up in the Act.⁷ Not many farmers have so elected.

Although the agricultural exemption excludes a farm employer from liability under the Compensation Act for work done on his farm our common law tort liability still exists. Any farmer may be liable to his farm hand just as he may be liable for injury to others, provided the following two things can be shown:

1. That the farm employer was negligent.

² Illinois Revised Statutes, Chapter 48, Section 139, paragraph 8.

³ Hill v. Industrial Commission, 346 Illinois 392 (1931).

⁴ Noverio v. Industrial Commission, 348 Illinois 137 (1932).

⁵ Uphoff v. Industrial Board, 271 Illinois 312 (1916).

⁶ Kehr v. Industrial Commission, 365 Illinois 378 (1937); Peterson v. Industrial Commission, 315 Illinois 199 (1925).

⁷ Illinois Revised Statutes, Chapter 48, Section 138.

2. That the employee is not barred from recovery because of:
 - a. contributory negligence
 - b. assumption of risk (knowingly and voluntarily assuming any risk involved in the performance of the operation)
 - c. facts showing that the injury was due to the negligence of fellow-workers.

The Workman's Compensation Act merely removes these defenses and makes it easier for the laborer to recover.¹ Since a farmer may be liable under the Act if he engages in a business other than farming, or may be sued at common law if he commits a tort (a wrong, injury or damage to another), it is good practice to carry liability insurance.

An interesting question arises relative to livestock-share or operator-share leases. Assuming that an employee has been wrongly injured, who is the employer that is responsible? Since liability in these cases is based on negligence and our courts have long ago stated that a landlord cannot be held liable for injuries caused by the negligence of a tenant, it would seem that the landlord might be held responsible only in three general situations:

1. Where the landlord pays all or a portion of the hired man's salary and actively engages in supervising the work which results in injury. (Master-Servant Relationship)

2. Where the tenant (or operator) and his employee are new to the farm and there is a latent dangerous condition on the farm which causes the injury.² This assumes that:

- a. The landlord has knowledge of the danger
- b. The tenant recently moved to the farm
- c. The tenant does not know of the dangerous condition and would not discover it upon reasonable inspection of the premises
- d. The employee of the tenant is not aware of the danger

3. Where the relationship between landlord and tenant (or operator) is construed by a court to be a partnership. Then each partner is an agent of the partnership to conduct the farm business and the negligence of an agent becomes the negligence of the partnership.³

Except for the above situations, the tenant (or operator) is generally liable for negligence to his employee.

One other relationship should be mentioned briefly — that of the farm manager to the landlord and to the tenant. The farm manager is an agent of the landlord and in addition to the powers which are expressly given

¹ Mt. Olive Coal Company v. Industrial Commission, 355 Illinois 222 (1934).

² Soibel v. Oconto Company, 299 Appellate 518 (1939) ; Wood v. Prudential Insurance Company, 212 Minnesota 551 (1942).

³ Illinois Revised Statutes, Chapter 106½, Section 13.

the manager, he has implied authority to bind the landlord contractually for the purpose of carrying on the business in the usual and customary way. Also, when exercising such authority, any negligent act of the manager is treated by law as the act of the landlord; thus, making it possible for one person to become liable in damages for another's negligent act. However, the same rules of liability apply as stated in preceding paragraphs. If the hired man is an employee of the tenant and is injured, generally neither the landlord nor manager can be held liable unless negligence can be shown. On the other hand, if a man is employed by the manager to put up a permanent fence or construct a corn crib (those things for which the landlord is responsible), wrongful injury to such employee might easily lead to liability on the part of the landlord. Applying principles of agency the manager will not incur liability so long as he acts within authority which has been expressly given or can be implied.¹ However, there may be situations in which the manager could be classified as an independent contractor (responsible only for a result) and would then be solely liable for any negligence toward an employee.² Such a position can be visualized for example when a farm management corporation employs painters to paint buildings on all the farms which it manages.

N. G. P. KRAUSZ

A STUDY OF TURKEY PRODUCTION

In 17 years the number of turkeys produced in Illinois increased over tenfold, advancing from 106 thousand in 1930 to 1,129 thousand in 1947. In 1947 feed equivalent to fully two and one-half million bushels of grain was marketed through Illinois turkeys. Turkeys in the state are found, in the main, on diversified farms averaging about 260 acres in size, where turkeys are the main although not the only source of farm income.

The rapid growth in turkey production has increased the desire for basic production and management information on the part of new and prospective turkey producers. With the thought of meeting this need, a three-year study was made, from 1945 through 1947, on a group of Illinois turkey flocks. It is the primary purpose of this article to give some of the basic data found in the study and to point to some of the results of good turkey flock management.

Not a large number of flocks were included in the study but it is believed that the data have a high degree of accuracy. From 15 to 17 flocks of turkeys were studied each year. The turkey grower kept a

¹ *Hodges v. Bankers Surety Company*, 152 Appellate 372 (1910).

² *Stellwagen v. Industrial Commission*, 359 Illinois 557 (1935).

special record book including forms for recording the amount of feed, labor, mortality, the purchase and sale of birds, all operating expenses connected with the turkey enterprise, and details of flock management. The study and the record book were planned with a view to obtaining separate records on the breeder flock and the market flock.

The Breeding Flock

Breeding flocks ranged in size from 105 to 2,314 females. In general, large flocks were handled by individuals who had more years of experience in turkey production than those with small flocks. However, an analysis of the records shows that flock management had more effect on success than size of flock.

In order to place all breeding flocks on a comparable basis the records were started on January 1 each year, and continued until all of the birds in the breeding flock were sold. The average production per hen was 32 marketable eggs. Average hatchability of all eggs set was 54.6 percent. The average length of time breeders were kept on the farms each year varied from 126 days in 1946 to 152 days in 1945. The peak of egg production each year occurred during the latter half of March at which time hens were laying at the rate of 48 eggs per 100 hens per day. It is believed that the pattern of egg production in 1945 was typical because in that year the demand for poults held up well throughout the breeding season. (Figure 1.)

In each year of the study there was a rather close relationship between the marketable eggs produced per hen and profits realized. In 1946 the average egg production

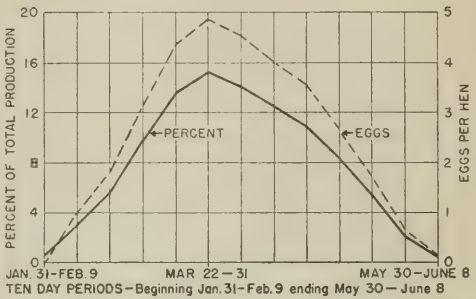


FIGURE 1.— PATTERN OF EGG PRODUCTION BY TEN-DAY PERIODS, 1945

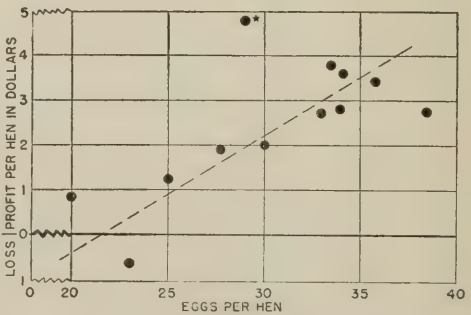


FIGURE 2.— RELATION OF EGG PRODUCTION PER TURKEY HEN TO PROFIT PER HEN, 1946

* Eggs from this flock sold at a premium. It was a lightweight breed with low feed costs.

per hen in two of the flocks was below 25. One of these flocks showed a loss for the breeding season and the other a profit of less than a dollar a hen. In the same breeding season flocks with an average production above 30 eggs per hen realized a profit of more than \$2.50 per breeder hen. (Figure 2.)

Feed was the largest item of cost in the maintenance of the breeding flock, consisting of the following kinds and amounts of feed per hen:

	<i>Pounds</i>
Breeder mash.....	43
Supplementary protein feeds.....	11
Corn.....	35
Oats.....	10
Milk products.....	2
Total.....	101
Oyster shells.....	4
Grit.....	2

The amount of feed consumed by breeder birds was found to vary with length of time the birds were held in the flock and with the ration fed. In 1945 breeders were held in the flock 152 days after January first, were fed 127 pounds of feed and eight pounds of shells and grit per bird. In 1947, breeders were held in the flock 132 days, were fed better balanced rations than in 1945 and consumed 84 pounds of feed and six pounds of shells and grit per bird.

Mortality among the breeders was next to feed in importance among the items of cost. In the three years 13 percent of the hens died. The extreme variation in mortality among breeders occurred in 1946 when it varied from 3.1 percent on one farm to a high of 41.4 percent on another. Mortality cost was computed by spreading the January first inventory value of birds that died over the birds that lived.

The cost of labor ranked third in importance among breeder flock expenses. During the three years an average of one and one-third hours of

TABLE 1.—THE PERCENTAGE WHICH IMPORTANT COST ITEMS IN TURKEY PRODUCTION WERE OF THE TOTAL COST DURING 1945, 1946 AND 1947

Cost items	Breeding flock (percent)	Market flock (percent)
Feed.....	52	68
Poult cost.....	..	13
Man labor.....	11	8
Mortality.....	13	5
Buildings and equipment.....	5	4
Breeding flock depreciation.....	6	..
Other costs.....	13	2
	100	100

labor were spent per breeder hen. It was not so much the amount of time spent on turkeys as it was the timeliness and the "master's eye" exercised by laborers working with turkeys that paid off. Wages were high, but a good hired man with a real interest in turkeys was found to earn his premium in wages if he exercised good judgment.

About two-thirds of the breeder flock owners housed the majority or all of their hens; the others used field shelters and distributed the nests at convenient points in the open lot. The investment in buildings and equipment used by the breeder flock averaged \$1.75 per hen.

The Market Flock

Market flocks on which records were kept over the three years contained an average of 3,760 birds. Poults were held in the brooder house or in complete confinement until they were from eight to ten weeks old before being taken to the range. Birds that were needed for breeding purposes were sorted out before Thanksgiving, the rest were taken off range and sent to the dressing plant at Havana, Illinois, or sold to buyers at the farm. The average liveweight of all birds on the range, when the market stock was taken off, was 19 pounds.

Feed was the principal item of cost in producing market turkeys. In the years 1945 through 1947, the cost of starting and growing mash rose from \$75 to \$110 a ton; corn from \$1.15 to \$2.10 a bushel and oats from \$.70 to \$1.10 a bushel. As an average for the three years feed was 68 percent of the cost of the finished bird. The amount of feed used in producing market birds was as follows:

<i>Kinds of feed</i>	<i>Feed per bird sold (pounds)</i>	<i>Feed per 100 pounds of live bird sold (pounds)</i>
Starter mash.....	12	63
Grower mash.....	28	148
Supplementary protein feed.....	13	68
Corn.....	34	179
Oats.....	22	116
	<u>109</u>	<u>574</u>

The initial price of the poult when started in the brooder, whether purchased or hatched from home-produced eggs, was second in importance among the cost items. The yearly average cost per poult varied from 60 cents to 80 cents and was 13 percent of the cost of the finished market bird. (Table 1).

Labor ranked third among the items of cost in producing market turkeys. There were 71 hours of work for each 100 birds sold. Labor was eight percent of all costs.

A mortality figure was computed by spreading the purchase price of the poults that died over the number of birds sold. It is realized that this method of obtaining a mortality cost figure does not include all of the

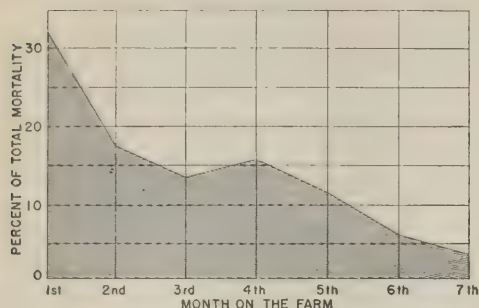


FIGURE 3. — PERCENT OF TOTAL MORTALITY OCCURRING EACH MONTH

birds lost died during the first month — most of this during the first ten days (Figure 3). Pullorum and failure to start eating were probably the two chief causes of this early mortality.

The mortality curve goes up again about the fourth month. Part of the reason for this, no doubt, is failure of turkeys to adjust themselves to the

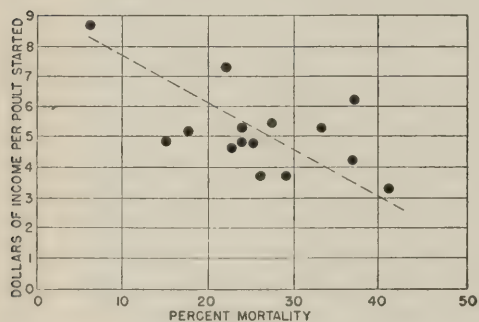


FIGURE 4. — RELATION OF MORTALITY IN THE MARKET FLOCK TO INCOME PER POULT STARTED, 1946

The hovers seemed most practical for flocks of 1,500 poults or less.

Mortality was lowest and gain in weight best in those flocks that were moved to clean range every week or ten days. The effect of mortality on the income of the flock is quite striking as can be seen in Figure 4. An

mortality costs, for it does not include the feed, labor, and housing costs of birds that died after they may have had a considerable amount of these additional cost items spent upon them before they died. The birds sold carried these additional items in with their total feed, labor, and housing costs. The loss of the purchase price alone on birds that died was five percent of all costs.

About one-third of the birds lost died during the first month — most of this during the first ten days (Figure 3). Pullorum and failure to start eating were probably the two chief causes of this early mortality. The mortality curve goes up again about the fourth month. Part of the reason for this, no doubt, is failure of turkeys to adjust themselves to the new environment. Failure to maintain sanitary conditions on the range and around the feeders often is responsible. Flocks at this age are also more likely to stampede from fright caused by predators and storms. Inadequate protection from cold rains may also be a factor.

About 60 percent of the poults were brooded in battery brooders. These were in the larger flocks. The small flocks used ordinary hovers.

analysis of the market stock records shows that those producers with low mortality losses managed their flocks better and that methods of management which resulted in low mortality also gave good gains from the feeds fed.

On farms where poults were purchased but no breeders were kept, the fixed capital in range, buildings, and equipment averaged \$1.10 a market bird. Poults cost from 60 to 80 cents each during the three years. If no credit is used, a reserve of \$3.50 a bird for feed and about \$1.50 for other expenses is needed. This gives a total capital requirement of about \$7.00 per market bird in the first year.

Not Advisable to Feed Turkeys to Heavy Weights

As turkeys increase in weight, more of the feed is used for maintenance and less is converted into flesh. When weight gains cease, all of the feed consumed is used for maintenance. Long before this point is reached, however, the amount of feed required to produce a pound of turkey becomes so great that it is not profitable to feed for additional gains. Figures in the accompanying table (Table 2) show that the turkeymen in this study in 1947 who sold their market stock at a weight of 17 pounds per bird had lower production costs per pound of turkey than those who fed to heavier weights.

The profit per bird was larger for the heavy birds; but birds that were sold at 17 pounds liveweight (Table 2) made a larger profit per unit of feed consumed than did the heaviest birds. For instance, 100 of the

TABLE 2.—EFFECT OF WEIGHT OF BIRD WHEN SOLD ON COSTS PER BIRD, AND PER POUND, 1947

Items	One-third that sold lightest birds		One-third that sold heaviest birds	
	Per bird	Cents per pound	Per bird	Cents per pound
Number of birds finished in year.....	3,956		4,735	
Liveweight of birds sold, pounds.....	17.0		21.0	
Percent mortality.....	24.3		21.6	
Items of cost				
Feed.....	\$3.95	23.3	\$5.31	25.8
Poult cost per bird sold.....	.74	4.4	.71	3.5
Labor.....	.37	1.9	.55	2.6
Mortality.....	.24	1.6	.24	1.2
Miscellaneous.....	.27	1.7	.32	1.4
Total operating cost per bird.....	\$5.57	32.9	\$7.13	34.5
Interest on capital.....	.09	.6	.07	.4
Gross cost.....	\$5.66	33.5	\$7.20	34.9
Deduction from cost, manure, sacks.....	.09	.6	.18	.9
Net cost per bird.....	\$5.57	32.9	\$7.02	34.0
Average selling price.....	\$7.11	41.8	\$8.63	41.1

heaviest birds ate the same quantity of feed as 132 of the lightest birds. The profit made by 100 of the heaviest birds was \$161. With no more feed, 132 of the lightest birds, after paying all expenses of production, made a profit of \$203. All of the heaviest birds and 83 percent of the lightest birds for which figures are shown in Table 2 were broad-breasted bronze turkeys.

Turkeys are very sensitive to their surroundings, their handling, and the management exercised in raising them. Differences from farm to farm in the cost of producing eggs and in the cost of producing a pound of market turkey are the result of variations in management. Good management of the breeder flock is reflected in high egg production and high hatchability; and good management of both breeder and market flocks results in low mortality and efficient use of feed.

R. H. WILCOX and H. M. SCOTT

TRENDS IN FARM OPERATING EXPENSES¹

It appears that farm prices and gross farm income are definitely past their postwar peak, but what has happened and is happening to prices *paid* by farmers, to farm costs? These, too, follow the inflationary-deflationary cycle, but usually not so fast and usually not so far.

Prices paid by farmers rose only two and one-half times their prewar level, while prices received rose three times. Prices paid did not reach their peak until almost a year after prices received, nor have they dropped so far as prices received. The index of prices paid by farmers in February 1949 was only six points below the peak of 251 (1910-14) in August 1948.

Perhaps the best way to illustrate what has happened and what is happening on the cost side of the farm business is to examine figures from the farm business records kept by farmers cooperating with the University of Illinois in our account-keeping projects. Table 1 presents the average *cash* farm income and expense figures taken from these farm account books from 1926 through 1947. Keep in mind, as is shown by the first item in this table, that the average size of farm increased significantly during this period.

The cash income figures on the second line illustrate two points, that prices and production have greatly increased over prewar. The 1947 cash income at \$21,000 was about four times the 1935-39 average. Prices increased roughly three times. Part of this increase was price inflation and part of it was an increase in production *for sale*.

¹ Portions of a talk given at Farm and Home Week, University of Illinois, February 3, 1949.

Notice that cash farm expenses, on the next line, increased also, but not so fast nor so far. In periods of falling prices it is again the expenses which lag behind income. Notice that cash farm expenses were still dropping in 1933, after incomes had already started back up. Notice also that from 1929 through 1932, cash farm income fell faster and farther than cash expenditures. Our preliminary estimates for 1948 indicate a leveling off of farm income, but a continued rise in cash expenditures. That situation, of course, makes it very hard on the *net* income.

One of the significant economic changes in agriculture in the past ten years has been the gradual increase of cash transactions in the farm business. In the five-year period from 1926 through 1930, it required about 4,000 bushels of corn per farm, at the average price of 76 cents per bushel, to cover all cash farm expenses. (See Table 1.) In the last five-year period, 1943-47, with an average price of \$1.28 per bushel, it took about 7,200 bushels of corn per farm to cover the cash farm expenditures. The average size of farms increased roughly 23 percent from 206 acres

TABLE 1. — AVERAGE CASH FARM INCOME, EXPENSE, AND PRICE RATIOS ON ILLINOIS ACCOUNT-KEEPING FARMS, 1926 THROUGH 1947

Items	1926	1927	1928	1929	1930	1931	1932	1933
Average size of farm ^a	199	203	206	207	215	219	219	218
Total cash income per farm ^a	\$5,116	\$5,077	\$5,291	\$5,622	\$5,044	\$3,237	\$2,505	\$2,806
Total cash expense per farm ^a	\$2,894	\$3,040	\$3,180	\$3,177	\$2,904	\$1,952	\$1,537	\$1,494
Percent cash expense was of cash income.....	57	60	60	57	58	60	61	53
Average Illinois farm price of corn \$.63	\$.63	\$.74	\$.86	\$.84	\$.73	\$.45	\$.22	\$.32
Cash expense in bushels of corn..	4,594	4,108	3,698	3,782	3,978	4,338	6,986	4,669
Average Illinois farm price of hogs \$12.15	\$12.15	\$ 9.88	\$ 9.02	\$ 9.78	\$ 9.12	\$ 6.10	\$ 3.59	\$ 3.68
Cash expense in cwt. of live hogs..	238	308	353	325	318	320	428	406
Items	1934	1935	1936	1937	1938	1939	1940	1941
Average size of farm ^a	223	216	227	227	232	237	242	239
Total cash income per farm ^a	\$3,692	\$4,342	\$5,374	\$5,309	\$5,285	\$5,920	\$6,334	\$8,002
Total cash expense per farm ^a	\$1,865	\$2,605	\$3,034	\$3,424	\$3,421	\$4,001	\$4,094	\$4,983
Percent cash expense was of cash income.....	51	60	56	64	65	68	65	62
Average Illinois farm price of corn \$.58	\$.58	\$.74	\$.73	\$.91	\$.45	\$.43	\$.54	\$.63
Cash expense in bushels of corn..	3,216	3,520	4,156	3,763	7,602	9,305	7,581	7,910
Average Illinois farm price of hogs \$ 4.38	\$ 4.38	\$ 9.02	\$ 9.70	\$10.11	\$ 8.06	\$ 6.56	\$ 5.54	\$ 9.37
Cash expense in cwt. of live hogs..	426	289	313	339	424	610	739	532
Items	1942	1943	1944	1945	1946	1947	1948	1949
Average size of farm ^a	239	246	255	255	254	254	.....	.....
Total cash income per farm ^a	\$10,865	\$13,204	\$13,748	\$13,376	\$15,544	\$21,054	(^b)	.....
Total cash expense per farm ^a	\$6,470	\$ 7,548	\$ 7,998	\$ 8,008	\$ 9,080	\$13,278	(^b)	.....
Percent cash expense was of cash income.....	60	57	58	60	58	63	.....	.....
Average Illinois farm price of corn \$.77	\$.77	\$.97	\$ 1.07	\$ 1.07	\$ 1.39	\$ 1.90	\$ 1.89	.....
Bushels of corn equal in value to cash expense.....	8,403	7,781	7,475	7,484	6,532	6,988	.....	.....
Average Illinois farm price of hogs \$13.37	\$13.37	\$14.07	\$13.47	\$14.25	\$17.53	\$24.50	\$23.86	.....
Cash expense in cwt. of live hogs..	484	536	594	562	518	542	.....	.....

^a State averages weighted by the number of Census farms in each type-of-farming area.

^b Estimated.

in the first period to 253 acres in the last period. Cash expenses in terms of bushels of corn equal in value increased about 80 percent. Most of this increase occurred from 1937 through 1942. This was the time when most Illinois farmers bought their first tractor or added the second tractor to the supply of farm power on their farms.

The same relationship is shown in the amount of liveweight of hogs needed to equal cash farm expenditures in value. This increase amounted to about 68 percent; a rise from 32,800 pounds in 1926-30 to 55,000 pounds in 1943-47. On the surface this seems difficult to reconcile with the prosperity of agriculture in the latter five-year period. Actually the inflation of farm prices was greater than that of the prices of most commodities farmers buy — up to the fall of 1948, that is. As one farmer observed, he paid more dollars than ever before for the tractor he bought last spring, but it cost him fewer bushels of corn — at that time.

Part of the increase we have noted in the cash costs has come through the purchase of many new items of capital equipment and machinery, and such operating items as gasoline, repairs, custom work hired, etc., that have gone with the shift from horse to mechanical power. But this same shift has released additional farm production for sale. Thus through growing crops for market on land formerly used to grow feed for horses, through an increase of approximately 25 percent in the volume of agricultural production per unit of inputs, partly as a result of this transition, and through the recent inflation of farm product prices, the cash receipts more than kept pace with the increase in cash costs. However, the prospect for 1949 is not as promising.

My estimate for 1948, to complete, Table 1, would be \$21,000 cash income, about the same as in 1947, and \$14,500 cash expenditures, an increase of about 10 percent. I could not dignify any figures for 1949 with the term "estimate," but if I were to *guess* it would be \$17,000 cash income and \$12,000 cash expense, a decrease in both cash income and expense, but a greater decrease in cash income.

Let us examine some of the actual items of expenditure that make up the total cash farm expense in Table 1. Tables 2 and 3 give such a summary for farms in the Farm Bureau Farm Management Service in 1947.

In Table 1, we see that the average account keeping farmer in 1947 spent 63 percent of his cash farm income in cash farm outlays. This ratio varied by type of farm from a little over 50 percent for the grain farms to a little over 75 percent for beef cattle farms. The higher the proportion of cash expense to cash income the more vulnerable is the particular farm business to price changes. And I expect those of you who have sweated out the cattle markets understand that very well.

Turn to Table 2 or Table 3 if you are primarily interested in dairy or beef cattle, and keep in mind two principal questions as you examine

TABLE 2. — AVERAGE CASH EXPENDITURES PER FARM BY SIZE OF FARM FOR GRAIN FARMS AND HOG FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE IN THE NORTHERN HALF OF ILLINOIS IN THE YEAR 1947

Expense Items	Under 180 acres		180 to 259 acres		260 to 339 acres		340 acres or more	
	Grain farms	Hog farms	Grain farms	Hog farms	Grain farms	Hog farms	Grain farms	Hog farms
Number of farms.....	118	196	227	184	173	105	196	101
Livestock purchased.....	\$1,289	\$2,113	\$1,592	\$2,923	\$1,857	\$5,791	\$2,984	\$7,972
Feed, grain and seeds.....	1,064	3,720	1,636	4,649	2,003	6,745	2,700	9,900
Total inventory items purchased..	2,353	5,833	3,228	7,572	3,860	12,536	5,684	17,872
Machinery and equipment expense.....	1,364	1,500	1,757	1,930	2,186	2,398	3,219	3,143
Hired labor cost.....	250	437	590	878	1,057	1,449	2,143	2,316
All other cash operating expense	1,011	1,160	1,247	1,587	1,774	1,922	2,507	2,735
Total cash operating expenses....	2,625	3,097	3,594	4,395	4,917	5,769	7,869	8,194
New machinery and equipment	1,522	1,501	1,648	1,802	1,823	2,582	2,967	2,843
New buildings, fence, etc.....	627	602	564	650	573	1,119	970	1,193
Limestone and rock phosphate..	263	231	400	327	488	419	701	552
Total purchases of capital items..	2,412	2,334	2,612	2,779	2,884	4,120	4,638	4,588
Total cash outlay per farm.....	\$7,390	\$11,264	\$9,434	\$14,746	\$11,661	\$22,425	\$18,191	\$30,654
Machinery cost items per farm:								
Repairs and maintenance.....	\$ 466	\$ 560	\$ 640	\$ 736	\$ 855	\$1,005	\$1,387	\$1,336
Custom work hired.....	288	309	330	373	370	417	449	539
Gasoline and oil.....	353	367	510	528	667	671	1,046	890
Depreciation ^a	557	618	741	766	921	1,038	1,268	1,284
Total crop acres per farm.....	122	108	182	156	246	205	365	270
Machinery cost items per crop acre:								
Repairs and maintenance.....	\$ 3.82	\$ 5.19	\$ 3.52	\$ 4.72	\$ 3.48	\$ 4.90	\$ 3.80	\$ 4.95
Custom work hired.....	2.36	2.78	1.81	2.39	1.50	2.03	1.23	2.00
Gasoline and oil.....	2.89	3.40	2.80	3.38	2.72	3.27	2.87	3.30
Depreciation ^a	4.57	5.72	4.07	4.91	3.74	5.06	3.47	4.76

^a Not a direct cash expense.

each type of expenditure: (1) Will it go up or down in price in 1949? (2) Can you satisfactorily reduce your expenditures for this item in 1949?

The first item, livestock purchases, will probably carry somewhat lower price tags in 1949, but reducing the volume of purchases is another question. More livestock rather than less seems to be a logical answer in view of abundant feed supplies.

The Annual Economic Report of the President's Council of Economic Advisors, dated January 3, 1949, carried this statement: "Another form of agricultural investment that will be needed is in breeding herds of livestock. The consumption goals that have been outlined include, along with the increase in total production, a substantial shift in favor of livestock products, which are favored both nutritionally and in taste preferences of consumers. Since the war, however, livestock numbers have been decreasing. To attain and maintain the level of output that appears desirable, over one billion dollars (1947 prices) should be invested within the next few years in building up herds and flocks."

The second item in Tables 2 and 3, feed, grain, and seed purchased, will probably enjoy lower prices in 1949, but any increase in livestock numbers will increase the need for adequate protein and mineral supple-

TABLE 3. — AVERAGE CASH EXPENDITURES PER FARM BY SIZE OF FARM FOR DAIRY CATTLE FARMS AND BEEF CATTLE FARMS IN THE FARM BUREAU FARM MANAGEMENT SERVICE IN THE NORTHERN HALF OF ILLINOIS IN 1947

Expense Items	Under 180 acres		180 to 259 acres		260 to 339 acres		340 acres or more	
	Dairy farms	Beef farms	Dairy farms	Beef farms	Dairy farms	Beef farms	Dairy farms	Beef farms
Number of farms.....	110	17	67	37	20	37	9	50
Livestock purchased.....	\$ 906	\$10,273	\$1,644	\$21,710	\$1,945	\$19,464	\$1,498	\$26,100
Feed, grain and seeds.....	1,891	4,367	2,532	7,979	3,324	7,403	4,113	11,001
Total inventory items purchased..	2,797	14,640	4,176	29,689	5,269	26,867	5,611	37,101
Machinery and equipment expense.....	1,476	1,687	2,027	2,078	2,387	2,506	3,751	3,314
Hired labor cost.....	668	584	1,328	1,021	1,731	1,869	3,800	2,489
All other cash operating expense	1,249	1,055	1,956	1,881	2,160	2,066	3,503	2,872
Total cash operating expenses....	3,393	3,326	5,311	4,980	6,178	6,441	11,054	8,675
New machinery and equipment	1,068	1,428	1,582	2,457	2,838	2,809	2,726	3,031
New buildings, fence, etc.....	548	359	603	892	955	1,516	2,189	1,762
Limestone and rock phosphate..	168	181	295	336	336	437	367	621
Total purchases of capital items..	1,784	1,968	2,480	3,685	4,129	4,762	5,282	5,414
Total cash outlay per farm.....	\$7,974	\$19,934	\$11,967	\$38,354	\$15,576	\$38,070	\$21,947	\$51,190
Machinery cost items per farm:								
Repairs and maintenance.....	\$ 522	\$ 758	\$ 781	\$ 862	\$ 997	\$1,034	\$1,746	\$1,421
Custom work hired.....	305	257	350	343	316	385	591	586
Gasoline and oil.....	337	389	542	554	741	707	893	939
Depreciation ^a	584	778	856	972	1,135	1,171	1,583	1,321
Total crop acres per farm.....	88	103	135	157	178	209	252	291
Machinery cost items per crop acre:								
Repairs and maintenance.....	\$ 5.93	\$ 7.36	\$ 5.79	\$ 5.49	\$ 5.60	\$ 4.95	\$ 6.93	\$ 4.88
Custom work hired.....	3.47	2.50	2.59	2.18	1.78	1.84	2.35	2.01
Gasoline and oil.....	3.83	3.78	4.01	3.53	4.16	3.38	3.54	3.23
Depreciation ^a	6.64	7.55	6.34	6.19	6.38	5.60	6.28	4.54

^a Not a direct cash expense.

ment feeds. I wish to emphasize at this point that much can be done by individual feeders in getting greater returns from a given quantity of feed. For example, the average return for \$100 worth of feed fed to hogs by our Farm Bureau Farm Management Service cooperators in 1947 was \$150. However, about one-fifth of the men got returns of \$180 or better from each \$100 feed fed to hogs, while another fifth got less than \$125 as a return for each \$100 feed fed.

Involved in this difference in efficiency are a great many management factors such as proper sanitation practices and feeding balanced rations. However, they are a part of the pattern that determines the ratio of cash income and expense *on any given farm*.

The next group of expense items in Tables 2 and 3 are the operating expenses. The major items of machinery and equipment expense are listed a little farther down the table. I see little prospect for any appreciable lowering of *prices* for repair work, gasoline and oil, etc., in 1949. In fact, high costs in some of these items may offset lower prices in others. Farm labor probably will continue scarce and high priced in 1949, at least if non-agricultural employment is maintained at or near its present high level.

Here again the quantity of these items required for efficient and profitable operation in 1949 remains an individual farm problem. *Efficiency in the use of input factors will be the major determining factor between profitable or unprofitable farm operation in 1949.* The average expenditure for gas and oil was \$367 for small grain farms in 1947, but about one-fifth of these farms spent more than \$500 for gas and oil, while another fifth got the job done for less than \$250 per farm. When I listen to Frank Andrew of our Agricultural Engineering Department explain the amount of fuel lost or wasted through poor storage, evaporation, improper carburetor adjustments, and inefficient work loads, these extreme differences in cost appear wholly unnecessary. You can add other examples of losses through improper care and handling of tractors and power machinery.

The other cash-operating expenses in this group in Tables 2 and 3, include such items as livestock expense, taxes, building and fence repairs and maintenance, and annual applications of fertilizer. There is not much chance for lower costs in 1949 in this group, but some differences will occur in the quantities used. Paint on farm buildings alone will raise these figures well above 1947 for the year just past. Paint jobs are and will continue high in price, but they can easily be postponed.

It may be just as easy to postpone applications of fertilizer, but not without some loss of production. Here again the real question is not necessarily one of reducing expenditures, but one of making most efficient use of fertilizer materials. This means testing your soil to determine what your needs are and what rate of application will be most effective for each field.

The average annual depreciation on limestone and phosphate plus the annual fertilizer applications on account-keeping farms in most of the cash grain area of Illinois, for the period 1945-47, was less than one dollar per acre of tillable land for about one-half of these farms. On the other hand, about one-fifth of the account keepers in this area made applications at the rate of \$2.00 or more per tillable acre during this three-year period. Some applications exceeded \$4.00 per tillable acre.

This raises the question of how far one can go and still realize a return on an expenditure of this kind. My answer would be to study your own records and the findings of the research workers in our Agronomy Department. After you are reasonably sure as to the response you may expect in actual yield increases from the use of a given amount and type of fertilizer on your farm, then estimate the costs involved and the probable value of the increased production to determine whether it will pay. If an application of \$4.00 worth of fertilizer to a given field on your farm produces an increase of three bushels in the yield, it will pay for

itself only if corn is at least \$1.33 per bushel. This statement, of course, ignores such other considerations as residual effect of the fertilizer and the cost of making the application.

The capital purchases in the next section of Tables 2 and 3 are investment items that have an extended period of usefulness. In other words, the cost incurred today for such items must be spread over the years of useful service we may expect from the particular investment. This prorated cost is called depreciation.

In the long run, if there were no change in the amount and value of capital goods employed, the purchases of new capital goods would equal the annual depreciation charge. Also, if the amount of, we will say, machinery and equipment remained the same but the price of new items increased, this increase would first appear in the current capital purchases and then as an increase in the annual depreciation charge as more of the higher priced goods were added to replace the capital inventory.

No doubt a large part of the much greater capital purchases of machinery and equipment compared with the depreciation charged for 1947 (Tables 2 and 3) was caused by inflationary prices on new machinery, but a considerable portion of it represents new capital being *added* to the farm business. How many farmers now own pick-up balers, self-propelled combines, spray equipment, corn and hay driers, etc., that did not have such equipment even just two years ago?

I cannot help but refer to Dr. R. C. Ross's observation in this connection that depreciation is not only a real cost but you pay for it in advance; that is, if such purchases are outright cash transactions. If, on the other hand, you finance such purchases through credit you may avoid paying for it in advance, but you contract to pay a fixed number of dollars with an unknown quantity of corn, hogs, beef, milk or eggs, depending upon future prices of the commodity in question. You will recall my earlier remarks about the man who paid the highest cash price for his tractor, but the lowest in bushels of corn.

New buildings and structural improvements! I hardly know what to say here, except that we can expect that investments in these items will be permanently higher than prewar. Replacement of major farm buildings such as barns, houses, and cribs occurs at intervals of perhaps 40-50 years or more. On many Illinois farms we are just now making some of the initial replacements. Old age and obsolescence make it increasingly necessary to either replace or extensively remodel existing farm structures. More pretentious and spacious farm shops and machine sheds are being put up on Illinois farms today. Frequently the investment in these new structures is as great or greater than the remaining cost in all the other farm buildings.

Modern plumbing and electrical wiring are added items of high cost outlays for farm homes and tenant houses. New and replacement fencing for proper utilization of forage crops as part of a soil conservation program will add their share of high costs in this category.

I recognize that many of these capital investments together with such improvements as tiling, terracing, etc., are made when farmers have the purchasing power to make them. We have been fortunate in that respect in recent years. Referring again to the Economic Report of the President's Council of Economic Advisers, we find this statement:

"During the war, the pressure for rapid expansion of production, high labor costs and increased farm income combined to bring about a rapid increase of investment in tractors and other machinery. This increase has been accelerated since the war as such equipment has become more readily available. From January 1, 1940 to January 1, 1948 the number of tractors on farms, and the volume of other machinery and equipment more than doubled. Farmers' purchases of motor vehicles, machinery, and equipment for use in production and their expenditures on farm buildings totaled nearly ten billion dollars from 1940 through 1945—an average gross investment of more than 1.5 billion dollars a year in current prices, equivalent to two to two and five-tenths billion in 1947 prices. Since the war, however, these outlays have averaged around four billion dollars annually (1947 prices). Over the next few years, an annual gross investment would be desirable at least equal to that during the war years."

In summary then, I suggest that in doing your planning today for 1949 and beyond, you give greatest attention to achieving maximum efficiency in all phases of the farm business. Therein lies your greatest opportunity as individual farmers to maintain a favorable ratio between a necessarily high level of cash expenditures and an uncertain cash income. Failure to produce efficiently will result either in a declining net farm income and a lower level of farm family living, or in destructive exploitation of both human and physical resources with the same ultimate result.

F. J. REISS

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. Converted from 1926 = 100 to 1935-39 = 100 by multiplying by 1.240694 for col. 1, and 1.315789 for col. 2. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-39 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39	
1933.....	82	67	57	94	67	68	75	69	54	69
1934.....	93	86	76	100	79	73	74	80	70	75
1935.....	99	104	102	101	89	86	85	86	80	87
1936.....	100	107	105	100	105	109	110	101	93	103
1937.....	107	113	118	104	111	116	112	107	111	113
1938.....	98	91	90	98	96	107	109	100	85	89
1939.....	96	86	84	97	99	107	110	107	100	109
1940.....	97	89	89	98	105	114	116	115	114	125
1941.....	108	108	112	103	140	146	140	138	168	162
1942.....	123	138	141	117	193	200	169	175	245	199
1943.....	128	162	165	127	244	241	190	216	334	239
1944.....	129	163	165	132	255	240	182	240	346	236
1945.....	132	168	171	136	270	248	182	248	293	203
1946.....	150	195	204	151	308	302	200	254	266	170
1947.....	189	238	265	181	378	386	213	281	324	187
1948.....	205	248	275	195	390	383	197	306	365	192
1948 Feb....	200	244	264	195	276	289	149	296	354	194
Mar.....	200	245	274	194	285	304	157	297	358	191
Apr.....	202	246	278	195	308	328	168	298	347	188
May.....	203	249	276	195	313	330	169	300	347	192
June.....	206	258	292	196	360	368	188	305	359	192
July.....	209	257	297	196	404	479	245	307	360	186
Aug.....	210	251	289	196	409	329	168	311	375	191
Sept.....	209	250	285	195	471	333	171	313	382	192
Oct.....	205	241	255	195	558	550	282	314	383	195
Nov.....	203	238	239	193	497	443	229	315	379	195
Dec.....	201	233	237	194	411	410	211	317	378	192
1949 Jan....	199	227	231	194	382	400	206	315	...	191 ¹¹
Feb.....	196	221	219	191	...	...	...	313	...	189 ¹¹

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			March 1948	Current months, 1949		
	1935-39	1947	1948		January	February	March
Corn, bu.....	\$.66	\$1.90	\$1.89	\$2.14	\$1.26	\$1.12	\$1.18
Oats, bu.....	.31	.97	.94	1.21	.74	.66	.68
Wheat, bu.....	.86	2.45	2.23	2.27	2.14	2.02	2.09
Barley, bu.....	.62	1.59	1.58	1.80	1.33	1.15	1.15
Soybeans, bu.....	.90	3.28	3.20	3.28	2.31	2.06	2.13
Hogs, cwt.....	8.52	24.50	23.86	22.00	20.60	20.00	20.50
Beef cattle, cwt.....	7.88	20.48	24.52	23.00	20.50	19.50	21.10
Lambs, cwt.....	8.36	21.31	23.44	20.60	22.50	22.10	25.20
Milk cows, head.....	58.00	173.33	194.17	180.00	210.00	200.00	205.00
Veal calves, cwt.....	8.66	23.08	27.16	24.00	27.70	27.70	26.60
Sheep, cwt.....	3.58	7.39	8.93	9.10	8.70	8.50	9.90
Butterfat, lb.....	.27	.69	.73	.76	.64	.61	.59
Milk, cwt.....	1.68	3.95	4.44	4.55	3.95	3.70	3.45
Eggs, doz.....	.19	.41	.42	.39	.39	.37	.38
Chickens, lb.....	.15	.27	.30	.29	.30	.30	.32
Wool, lb.....	.25	.42	.42	.41	.42	.41	.41
Apples, bu.....	1.08	2.72	2.33	2.25	3.00	3.20	3.20
Hay, ton.....	9.39	16.88	20.64	22.00	20.80	21.00	20.60
Potatoes, bu.....	.91	1.91	2.00	2.10	1.90	2.00	2.00

¹⁻¹² For sources of data in tables see preceding page.

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ILLINOIS FARM ECONOMICS

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SOME FACTORS TO CONSIDER WHEN BUYING FEEDER CATTLE

The Illinois cattle feeder is again faced with the annual problem of determining what to do. Should he buy cattle and, if so, where and what type? How should they be handled? Much of this is a problem of management but 123 Illinois cattle feeders in January 1949 listed some points to consider when buying cattle.

1. A cattle feeder knows the feeding program he wants to follow. He should buy the type cattle that will make efficient use of the available feed and facilities.

2. A cattle feeder should have a definite feeding and marketing program in mind and then buy the particular type of cattle that fits this program at the time that should give the best price spread. Figure 1 shows the seasonal variation of prices for various classes and grades of feeder and slaughter cattle, but in a particular year, the price pattern may be different.

3. A cattle feeder should know conditions of weighing the cattle. Were they empty or full when weighed? If the cattle had just taken on a big fill they may easily cost \$1.00-\$1.50 more per hundred than other cattle weighed empty. A year ago a carload of 956-pound steers weighed more after being watered at destination than when bought in Kansas because they were weighed after a 28-mile walk in a hot wind with a temperature of 100°. If cattle are being purchased on "pay weights," the feeder should determine the shrink he is accepting. Sale on "pay weights" is a common method of selling cattle by many local dealers and auctions in Illinois on the basis of the buyers' purchase weights.

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

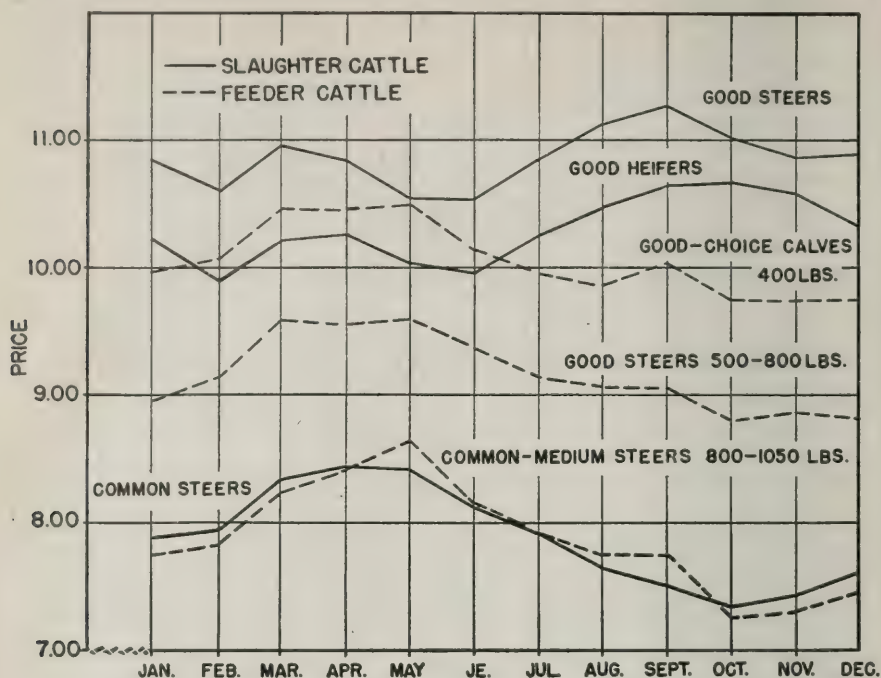


FIGURE 1. — SEASONAL PRICES OF FEEDER CATTLE AT KANSAS CITY AND SLAUGHTER CATTLE AT CHICAGO, 1936-1942

4. A cattle feeder should watch for stale cattle, "ringers" and "counterfeits."

Margins in buying feeder cattle. There are many items of expense from the time feeder cattle leave the range until they arrive in the feedlot. This difference between the price paid at the ranch and the price paid by the feeder at his farm makes up margins. The majority of these costs are of a nature that cannot be eliminated but the individual feeder needs to consider how he can keep them at a minimum.

These 123 cattle feeders indicated 29 percent of their cattle came from the northwest and 19 percent from the southwest. This 48 percent was hauled over 750 miles from ranch to feedlot. Another 37 percent was hauled 500-750 miles and the remaining 15 percent less than 500 miles. Transportation has long been recognized as a cost factor. Costs per hundredweight for transportation generally increase as distance increases. A large portion of the cattle moving to Illinois feedlots comes to the market by rail and they are moved to the farm by truck. Other items of expense incurred in transportation are in-transit insurance, and if in

transit for over 28 hours, or with written instructions from the owners, 36 hours, there is a charge for feed and water en route. *This combined transportation charge varies with the distance cattle are hauled both in terms of miles and length of time in transit.*

In addition to the transportation cost there is an indirect cost item of shrink. The farmer is interested not only in the pounds lost but also in the length of time necessary to again have the animal at the purchase weight. Shrink is determined largely by weighing conditions, distance hauled, weather, etc. Length of time to gain back this shrink is determined by type of cattle, method of handling, general condition of cattle, etc. Fifty percent of the calves took over 10 days to gain back the shrink, while 55 percent of the two-year-olds gained back the shrink in five days or less.

A second major expense in buying feeder cattle is that of interest on the investment. While this is an out-of-pocket cost only if the money is borrowed, it should not be overlooked. *Interest varies with the price of cattle (amount borrowed), terms of the loan (interest rate), and length of time cattle are on the farm.*

The third item of expense in buying feeder cattle is commissions or the amount the cattle feeder pays someone else to buy cattle for him. *This varies from one source to another.* Some regular rates are: 15 cents a hundred, one dollar per head, \$15 a car, etc. For all those paying a commission in this study the average was 15.3 cents per hundred. If the farmer buys his own cattle the costs for his time and travel frequently are as high as or higher than they would be if he hired someone else to do the buying.

From the above it is evident there are many variables affecting each factor in margins. The 10,426 feeder cattle bought cost the 123 Illinois feeders eight percent more than the price of the cattle. This eight percent margin was broken down as follows: interest 4.6, transportation 2.8, buying .6. A study of the cost of selling feeder cattle indicated the rancher received 68 cents a hundred less than the buyer paid. Combining these two margins to arrive at a figure representing the handling margin from rancher to the feedlot gives a difference of \$1.59 per hundred.

Cattle feeding profits and losses are largely determined by two factors: (1) price differential between cost of feeders and selling price of these cattle as slaughter animals; (2) difference between cost of gain and selling price. With heavy cattle the first factor is more important, while with calves and light yearlings the second factor is the more important.

Illinois farmers have many sources of feeder cattle. In this study 12 percent came direct from growers, 46 percent from the public market, 38 percent from dealers, and four percent from auctions. The majority

of the Canadian and Dakota cattle were purchased through dealers; most of the southwest cattle came through public markets.

With the marketing system in use in this country a cattle feeder is free to buy cattle wherever and however he chooses, using that market that has the type cattle he wants at a price he is willing to pay. Many veteran cattle feeders expressed the opinion that the various factors to consider in buying cattle are valueless unless the seller is most reliable and has the highest degree of integrity.

W. J. WILLS

FOREIGN TRADE AND ILLINOIS AGRICULTURE

In the year which ended June 30, 1948, the United States exported \$13.8 billion of goods and imported \$6.3 billion. Thus, we provided the balance of the world with \$7.5 billion more goods than they sold to us. This was balanced with loans, grants, repurchases of American securities, expenditures by Americans abroad, imports of gold, investments of our people in foreign countries, and other financial transactions. This was obviously an unstable situation and since July 1, 1948, the gap has tended to be closed by a decline in exports and an increase in imports. During the last few months the remaining export balance has been largely covered by ECA grants and loans. In the same year exports of agricultural products totaled \$3.4 billion and imports of these totaled \$2.9 billion.

What interest do Illinois farmers and other citizens have in exports and imports? First, exports provide markets for surpluses in excess of our own needs and thus opportunities for what may be profitable production. They also tend to support market prices. Second, imports provide us with useful goods for our own consumption. Third, imports may compete with products of domestic production. Fourth, since our export balance is now met with government funds, all taxpayers have an interest in seeing this gap closed.

Exports of interest to Illinois farmers. The ten most important groups of agricultural exports in 1947-48 and in the last six months of 1948 are shown in Table 1. Grains dominated the list. This was largely wheat and flour but it included 33.7 million bushels of corn and cornmeal. Of the groups important to Illinois farm markets, grains, dairy products, soybean flour (\$42.7 million in 1947-48), animal fats, chiefly lard, eggs, meats and vegetable oils (\$29 million of soybean oil) are most important. Because of smaller supplies here caused either by shorter crops in 1947 or by declining foreign interest, exports of vegetables, fruits, animal fats, eggs, meats and vegetable oils were relatively lower in the last six months of 1948 while exports of grains, cotton, dairy products and tobacco held

TABLE 1. — VALUE OF DOMESTIC EXPORTS OF TEN MOST IMPORTANT GROUPS
OF AGRICULTURAL PRODUCTS
(Millions of Dollars)

	July, 1947, to June, 1948	July, 1948, to December, 1948
Grains and grain products.....	\$1,749.2	\$887.3
Cotton and linters	341.4	290.6
Dairy products.....	241.3	122.1
Tobacco.....	205.9	133.7
Vegetables and vegetable preparations.	176.4	51.1
Fruits and fruit preparations.....	143.5	49.0
Animal oils and fats.....	108.7	40.8
Eggs and egg products.....	87.7	10.6
Meats.....	76.1	25.0
Vegetable oils, expressed.....	64.9	18.1

up. For eggs and perhaps meats this likely represents a permanent decline but for fats and oils — both animal and vegetable — it was probably temporary.

Foreign countries buy in this country things needed to supplement their own production or those that can be acquired at greater advantage here than elsewhere. What particular commodities of interest to Illinois agriculture will they want to buy here? In such a list one may include wheat, soybeans and soybean products, lard, soybean oil, corn, and perhaps dairy products. Foreigners will likely not want to buy eggs or egg products and will feel that meat is too expensive. A word about each:

Wheat. Europe must import a substantial part of her bread requirements. As long as liberal supplies are available here, she will likely buy considerable wheat in this country. Alternative sources of supply are Canada, Argentina, Australia, and southeastern Europe including Russia, but since the war the surpluses of these countries have been quite inadequate to supply Europe's needs.

Soybeans and soybean products. European countries are heavy users of food fats and oils. In some countries these products are still rationed. Soybeans produce a useful food fat — hydrogenated soybean oil. Soybeans also yield a valuable protein food and feed. Soybean flour may be used to provide a protein which may in part replace animal proteins. In 1947-48 we exported 617.7 million pounds of this product equal to about 12 million bushels of soybeans. Exports of this item held up well through February 1949. Soybean meal also makes an excellent stock feed which European countries can use in their present efforts to restore their domestic livestock, dairy, and poultry industries. There is no large production of oil seeds in western Europe. Before the war Europe imported and processed rather large quantities of Manchurian soybeans which are not now available. While our exports of soybeans in 1947-48 were rather small (about three million bushels), the quantity was held down by our

system of export allocations. Reports indicate that more will be exported in 1948-49, perhaps 15-25 million bushels. If European countries have their choice, they will likely take the soybeans and also some soybean oil. It appears that we are more likely to have a surplus of the oil than of the meal because of the large demands for protein feeds for feeding livestock in this country.

Lard. With an expanding hog production we shall have a surplus of this commodity, a by-product of our meat industry. All evidence indicates that lard will be relatively cheap. A market for some of this may be found in Europe, particularly Germany. It is also a considerable item of export to Cuba, Venezuela, and other Caribbean countries which export products for dollars. With export allocations ended and the price of lard low, we may sell considerable quantities.

Corn. Europe needs to import feed to supplement home supplies. Whether we sell corn or not depends on supplies and competitive prices in Argentina which before the war furnished the bulk of the corn in international trade. Recently production in that country appears to be below the prewar level.

Dairy products. In 1947-48 exports of dairy products ranked third, exceeding tobacco. These included considerable quantities of cheese, evaporated milk, sweetened condensed milk, and both dried whole milk and non-fat milk solids. These are very valuable foods. Whether we can continue to export depends on recovery in foreign milk production. Likely our exports will gradually decline but it is worth noting that up to December 1948 Europe gave a high priority to dairy products.

Eggs. Exports of egg products largely disappeared in the last six months of 1948. Rising production in Europe and the fact that most of our exports were in the form of dried eggs mean that this group will likely decline.

Meat. Europe is still short of meat. This is dramatically illustrated by the fact that the meat rations in England have been recently reduced. But it is unlikely that they will pay American prices for very much meat.

Wheat, soybeans and products, lard, corn, and dairy products seem to have the best prospects for exports among Illinois farm products.

What agricultural imports are important? It has been noted that in 1947-48 we imported within \$500 million as much of agricultural products as we exported. This gap is likely to close and the prewar situation be restored. We were then net importers of agricultural products.

Imports of ten leading categories of agricultural products and of cattle and meats are shown in Table 2.

These are mostly things which either we cannot produce or do not

TABLE 2. — VALUE OF IMPORTS OF TEN LEADING AGRICULTURAL COMMODITIES
AND CATTLE AND MEATS
(Millions of Dollars)

Products or class	July, 1947, to June, 1948	July, 1948, to December, 1948
Coffee.....	\$665.0	\$341.3
Sugar.....	358.1	157.5
Rubber.....	258.7	166.3
Wool and mohair, dutiable.....	190.4	84.9
Wool, carpet.....	74.1	44.3
Cocoa and cacao beans.....	190.5	77.7
Hides and skins.....	110.4	39.0
Fruits and preparations.....	91.6	52.5
Oilseeds.....	148.3	61.7
Vegetable oils and fats, expressed.....	84.8	48.2
Tobacco.....	69.9	38.4
Cattle.....	20.3	60.8
Meats.....	30.3	58.3

produce in adequate quantities. Coffee, rubber, and cacao are clearly in the first class. Very little sugar is produced in the midwest; high labor requirements make it a crop not adapted to our economic conditions. The United States does not produce enough wool or hides to meet our requirements. We do not produce any of the coarse carpet wools which come in duty free. The biggest item in the fruit classification is bananas. The oil seeds are largely copra and castor beans which we cannot or do not produce in any volume. The coconut oil from copra is largely used for soap. The principal imported oils or fats are tung oil (a drying oil) palm oil, coconut oil and carnauba wax. These largely supplement our supplies of vegetable oils. The tobacco is of special types. Illinois farmers consume all of these products in one form or another.

An indication of a trend is the increase in imports of cattle and of meat. These were much larger in the last six months of 1948 than for the entire year 1947-48. The increase in cattle reflects a change in policy by Canada which removed an embargo on cattle to the United States. In the fall of 1948 feeder cattle again began to flow to the United States. The increased imports of meat were chiefly beef, fresh or frozen, and canned. A somewhat similar but smaller development occurred in foreign types of cheese. We can expect further growth of imports of certain products of this type. The quantities in relation to the size of our markets will be small. But as world food shortages ease, the pressure for dollars will tend to push many kinds of foods into this country including various kinds of animal products.

The imports which may indirectly be the most competitive with Illinois farm products, although the influence will be indirect, will be the vegetable oils and oil seeds. The largest imports — copra and coconut oil — are largely used in this country for soap but may be used in foods. They are widely used in food products in other countries.

How are exports to be paid for? In 1947-48 we exported \$7.5 billion more goods than we imported. In the last six months of 1948 the export balance was \$2.4 billion, or at the rate of \$4.8 billion for the 1948-49 fiscal year. This was offset by ECA funds, i.e., was paid by the American Treasury. Obviously this situation will not continue indefinitely. ECA is now expected to terminate in 1952 and will likely make diminishing advances in the intervening years. A balance if achieved will mean reduced exports and increased imports, capital investments abroad, and payments to foreigners for services, such as tourist expenses, ocean freight, etc. Our exports will be reduced for kinds of goods which foreigners can do without, buy elsewhere, or produce at home. Presumably what we continue to export will be products for which we have a higher economic advantage in production: grains, by-product fats (lard), soybeans, cotton and tobacco should have survival value in this competition for foreigners' dollars. Animal products other than lard will be weak competitors.

What sorts of agricultural imports may increase? We are not considering imports of non-agricultural products which in the last six months of 1948 exceeded agricultural imports by about 40 percent. It is well to bear in mind that a large part of the people of the world are farmers and that, if many countries are to export, they must sell agricultural products. Moreover, the United States is the greatest single consuming market in the world and, as world food supplies increase, the pressure to sell here will increase. The bulk of our agricultural imports will be the great tropical and subtropical staples and a great variety of minor products from such areas. But imports are likely to increase for more directly competitive products such as Canadian cattle, meats, cheese, shell eggs, wool, hides, miscellaneous animal products, vegetable fibers, fruits not adapted to this country, nuts, special types of tobacco, early vegetables, wines, seeds and bulbs. Silk, imported in low volume since the war, will likely increase although not to the prewar level. None of these more competitive products except wool and hides will be in large dollar volume but they will add to the variety of our diet as well as moderately increase the quantities to be sold in our markets.

Our trade policies. Since 1935 our national policy has been to stimulate foreign trade by reduced import duties. This has been implemented by negotiating trade agreements with various foreign countries. The survival of this program suggests that the American public increasingly realize that we are in a stage of economic development where foreign trade is of growing importance and that we must import as well as export. The reality of this policy is shown in a steady decline in the rate of import duties on actual imports, Table 3.

TABLE 3. — PROPORTION OF IMPORTS DUTIABLE AND NON-DUTIABLE AND AVERAGE PERCENT OF VALUE COLLECTED AS DUTIES

	Free	Dutiable	Duty collected in percent of value on:	
			Dutiable goods	All imports
	(percent)	(percent)		
1931.....	66.6	33.4	53.2	17.8
1936.....	57.1	42.9	39.3	16.8
1940.....	64.9	35.1	35.6	12.5
1945.....	67.0	33.0	28.2	9.3
1948.....	58.5	41.5	13.7	5.7

The trend toward a lower level of import duties is clear. In interpreting these figures, bear in mind that the ratio of average duty to value may be reduced by: (a) a rise in prices where duties are specific, i.e., a fixed amount per unit; (b) a shift in imports toward goods with lower duties; (c) actual reduction in duties. It is noticeable that the ratio of imports of free-list goods to total imports declined from 1945 to 1948. In 1948 the actual rate charged on all imports averaged 5.7 percent of value and on dutiable goods 13.7 percent in comparison with 53.2 percent in 1931. This trend toward lower duties is likely to continue, at least for the next few years. It will tend to encourage imports of many kinds of goods including certain agricultural products.

L. J. NORTON

MORE LEGUMES AND GRASSES — PROBLEMS AND BENEFITS¹

The long-time benefits of increased acreages of legumes and grasses are shown by research studies in the economics of soil conservation. In these studies neighboring farms of similar soil resources are compared — that is, farms with similar land-use capabilities and of the same size but with differences in the amount of soil and water conservation practices applied.

Illinois land use. Illinois has approximately 24.8 million acres of cropland. About 30 percent of this is classed as being of high productivity, 50 percent of moderate productivity, and 20 percent of low productivity. About 45 percent of the total cropland has less than a 2 percent slope, and an additional 9 percent is bottomland. Thus about 45 percent of the cropland has a slope of 2 percent or more.

There is a strong tendency to use land more intensively than desirable

¹ Summarized from studies carried out cooperatively by the Agricultural Economics Department, University of Illinois, College of Agriculture, and Economic Research Section of the Soil Conservation Service, U. S. Department of Agriculture, E. L. Sauer, Project Supervisor.

from the standpoint of a sound long-time land-use program. For the years 1946-48 approximately 55 percent of the cropland in Illinois was in corn and soybeans, 20 percent in small grains, and 20 percent in hay and pasture. A sound long-time land-use program would call for no more than 40 percent of the cropland in corn and soybeans and approximately 35 percent in rotation hay and pasture (Figure 1). Some central and east-central Illinois cash grain counties average as much as 70 to 75 percent of their cropland in corn and soybeans and as little as 8 to 10 percent of the cropland in rotation hay and pasture. Legumes and grasses are the best source of needed organic matter and help in providing better tilth, better drainage, and more water-holding capacity. They are also of prime importance in fertility improvement and soil and water conservation and erosion control.

Adjustments needed. On an Illinois farm of 185 crop acres, the average adjustment recommended for best land use would mean 28 acres more legumes and grasses and 27 acres less corn and soybeans. In the long run this would result in larger production in terms of bushels of corn and soybeans as well as more legumes and grasses than if the present acreage of soil-depleting crops is continued.

McLean county. Ten years of data for high- and low-conservation farms in McLean county show that more legumes and grasses increase production and income, help prevent soil erosion and loss of capital resources, and make for greater long-time productivity. Twenty high-conservation farms had an average of 20 percent of their tillable land in

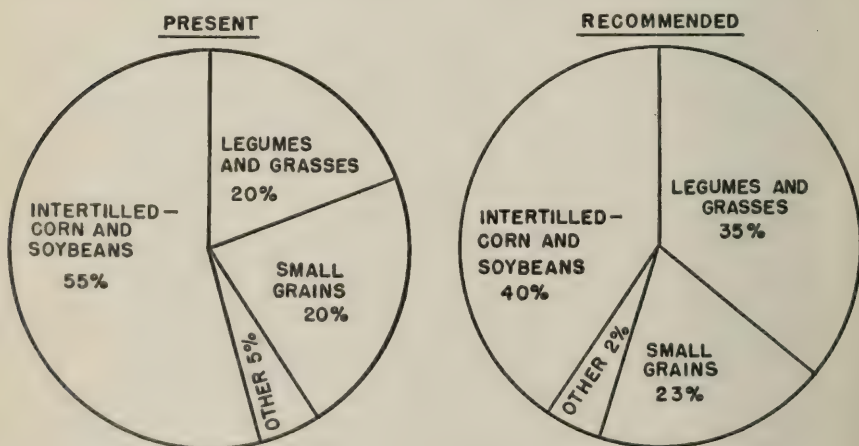


FIGURE 1. — ILLINOIS LAND USE, PRESENT (1946-1948) AND RECOMMENDED (24.8 MILLION ACRES OF TILLABLE LAND)

soil-building legumes for the 10-year period 1936-45 (27 percent in all hay and pasture). Twenty physically comparable low-conservation farms averaged only 10 percent in soil-building legumes for this period (18 percent in all hay and pasture). For this 10-year period corn yields averaged 7 bushels an acre higher on the high-conservation farms, and yields of all crops averaged 12 percent higher. Per acre net income on the 20 farms with the most legumes and grasses was lower in 1936 than for the physically comparable farms with the least legumes and grasses. For 1936-40, however, it averaged \$2.36 an acre higher, and for 1941-45 it was \$4.17 an acre higher (Table 1).

Madison-St. Clair counties. Nine years of records on physically comparable high- and low-conservation farms in Madison-St. Clair counties show that high-conservation farms with a higher percentage of tillable land in legumes and grasses are averaging 5 bushels more corn per acre and 2 bushels more wheat and soybeans per acre. The high-conservation farms have more good alfalfa, clover, and legume grass mixtures. They milk more cows and the milk production per cow is higher. The returns per \$100 worth of feed fed averaged \$19 higher on the high-conservation farms (Table 1).

Stephenson-JoDaviess-Winnebago counties. A summary of eight years of farm records on physically comparable high- and low-conservation farms in Stephenson, JoDaviess, and Winnebago counties confirms results from the two areas previously mentioned. The high-conservation farms averaged 38 percent of their tillable land in biennial and perennial legumes compared with 28 percent for the low-conservation group. Corn and oats yields averaged 5 and 4 bushels, respectively, higher on the high-conservation group. Net farm incomes averaged \$6.65 higher per acre on the high-conservation farms for the eight-year period (Table 1).

TABLE 1.—SUMMARY, AVERAGE PERCENT TILLABLE LAND IN LEGUMES AND GRASSES AND ADVANTAGE IN LIVESTOCK RETURNS AND NET INCOME PER ACRE OF FARMS HIGH IN LEGUMES AND GRASSES
(Physically Comparable Farms)

Area	Percent tillable land in legumes and grasses		Average advantage of farms high in legumes and grasses	
	High farms	Low farms	Returns per \$100 feed fed livestock	Net income per acre
McLean County, 10-year average, 1936-45.....	27	18	\$12	\$3.46
Madison-St. Clair counties, 9-year average, 1939-47.....	38	29	19	5.61
Stephenson, JoDaviess and Winnebago counties, 8-year average, 1940-47.....	38	28	5	6.65
Northeastern Illinois slowly permeable soils area, 3-year average, 1945-47.....	25	17	10	7.39

Plant food losses and gains. Estimates of plant food losses and gains from crops grown show that farms with a low acreage of legumes and grasses are depleting their soil resources at a rapid rate compared with farms having recommended acreages of legumes and grasses. A study of a group of central Illinois farms for a five-year period showed that farms with a high proportion of land in hay and pasture had a net loss of plant food removed by crops (grain, hay, and pasture) of 54 cents per acre, compared to \$2.67 for the group of farms having only half as much land in legumes and grasses. It was further estimated that the plant food lost from erosion was over eight times as high on the farms with a low proportion of land in legumes and grasses.

Problems. The problem of securing increased acreages of legumes and grasses is most acute in the cash grain area. A high proportion of the farms in this area are tenant-operated, and a cash grain type of farming prevails.

Livestock and legumes and grasses. To utilize increased acreages of grasses and legumes in a conservation program, more livestock may be necessary. Some farmers feel that a reduction in acreage of grain means a reduced income, and are often reluctant to increase legume acreages and livestock numbers. In addition, some farmers are not livestock minded and do not care to raise livestock, while others have not had enough experience and training to be good livestock men. For the three years 1945-47 farms with the greatest and the least amount of livestock were compared for the slowly permeable soil groups in the north-eastern Illinois area. The high livestock farms spent more on land and building improvements and applied more limestone, phosphate, and fertilizer. The high livestock farms also had more land in hay and pasture and less in soil-depleting crops. Net income per acre, crop yields, and livestock returns were higher on the high livestock farms. Part of the larger net income resulted from the higher returns per \$100 feed fed on the high livestock farms. In part, these higher returns were due to the larger quantities of better-quality hay and pasture produced on these farms. Higher crop yields on the livestock farms reflect the soil-building effect of the legumes and grasses and availability of more manure (Table 1).

A livestock and a grain farm. A comparison made between two actual farms, one operating as a grain farm for many years and the other as a livestock farm, shows the effects of reduced acreage of corn and soybeans and increased acreage of hay and pasture. Both farms are located on predominately Clarence-Rowe (slowly permeable) soils. The management during the period studied was comparable. On the livestock farm an average of 50 percent of the tillable land was in corn and soy-

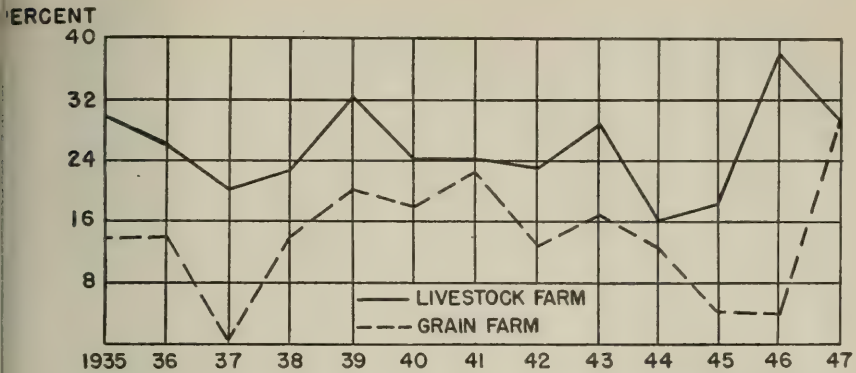


FIGURE 2. — PERCENT TILLABLE LAND IN LEGUMES, A LIVESTOCK AND A GRAIN FARM ON CLARENCE-ROWE SOILS, NORTHEASTERN ILLINOIS SLOWLY PERMEABLE SOILS AREA

beans each year from 1935 to 1947, compared with 57 percent on the grain farm. The livestock farm had an average of 36 percent of its tillable land in soil-building legumes, compared with only 14 percent on the grain farm (Figure 2). Corn yields averaged 16 bushels higher, oats yields 11 bushels higher on the livestock farm, and soybean yields were the same (Figure 3). At the beginning of the period the grain farm had a higher net income per acre, but since 1941 the income has been consistently and increasingly higher on the livestock farm.

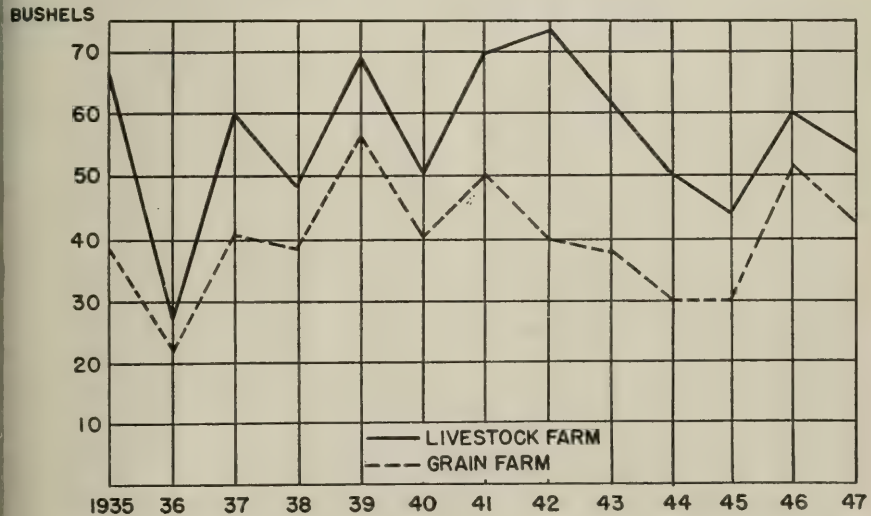


FIGURE 3. — CORN YIELDS PER ACRE, A LIVESTOCK AND A GRAIN FARM ON CLARENCE-ROWE SOILS, NORTHEASTERN ILLINOIS SLOWLY PERMEABLE SOILS AREA

A "grassland" farm. An illustration of maximum use of legumes and grasses is a case farm under study in southwestern Illinois. On this 270-acre farm all but 15 acres are now in forage crops. These hay and pasture crops are utilized largely as pasture by dairy cattle. To save labor, hay, and concentrates, the cattle are pastured throughout the year except on days when ice and snow cover the ground. The cattle are brought into the barn only for milking and for feeding of a limited grain supplement. In the past five years this owner-operator has spent a total of \$18.75 per acre for soil fertility improvement such as lime, phosphate, and mixed fertilizers. He also has terraced his pastures. He fed approximately 1,000 pounds of concentrates per cow in 1948 and had an average milk production of approximately 10,000 pounds per cow. His net farm income during the past five years averaged approximately double that of the farm-account-keeping farms in his county.

Capital costs. One of the problems of securing increased acreages of legumes and grasses is the capital outlay required. Generally, limestone and phosphate must be applied in order to get the good stands of legumes and grasses necessary for soil fertility improvement. Studies of a large number of farm records show that a complete conservation program costs from \$20 to \$40 an acre. Unless the farmer has adequate capital resources to tide him over until he starts to reap benefits from a conservation program, he may find it difficult to start such a program. However, investment in soil improvement helps to maximize farm income over a long-time period and improves soil productivity. On many of the tenant-operated farms, buildings and fences are not adequate to take care of livestock necessary to utilize the acreage of hay and pasture needed from the standpoint of conservation and soil fertility improvement.

Summary. A good soil fertility improvement program will result in additional hay and pasture. To utilize the hay and pasture, the number of roughage-consuming livestock may have to be increased. Numerous cases can be cited where cash grain farmers have profitably utilized increased acreages of forage crops for soil fertility improvement. On the average farm, returns probably will be greater if the increased forage crops are utilized through livestock.

The farms with the most legumes and grasses had higher livestock efficiency as measured by "returns per \$100 of feed fed." Does this fact reflect better livestock management or better feed? It is felt that the better-quality feed supplies—grain, hay, and pasture—explain the greater efficiency.

More legumes and grasses do not necessarily increase earnings immediately. Considerable effort and money must usually be expended

before positive results are achieved. The long-time benefits, however, are certain. Over a long-term period farms that have spent more money for soil and related improvements have more land in legumes and grasses, have higher crop yields, produce more and better-quality hay and pasture, feed more livestock, have higher livestock production and returns, and secure larger net farm incomes.

E. L. SAUER

KEEPING THE FARM IN THE FAMILY¹

Keeping the farm in the family. The idea sounds good. There are a couple of questions, however, that need to be answered satisfactorily before making the final decision. (1) Is it desirable? and (2) How may it be done most effectively?

Is It Desirable?

It is natural of course for farm families to wish to keep the farm in the family. All angles of the situation, however, need to be considered. One of the important angles is the farm itself, its size and productiveness. The other angle is whether or not there is an able son or son-in-law who is interested in continuing the operation and ownership of the home farm.

The farm itself. Obviously the farm needs to be of such an acreage and of such productivity as will provide an economic size of business. In some instances it might be possible to add to the acreage or so change the type of farm business to make it an economic sized unit. As to how large a farm business is needed before it is desirable to keep the farm in the family is to some extent a matter of personal choice.

Farming at its best is no longer a one-man job. Probably a two-man size has many of the characteristics desired in business farming of today. In any event an efficient farm should provide probably not less than 400 days of productive work and range from that size to ones providing from 700 to 800 days of work.

The son or son-in-law. Not all farm sons are born to be farmers. In some instances sons have continued on the home farm largely because of a sense of duty to the parents. Probably in such cases it is not desirable to keep the farm in the family.

The son's wife must also be interested in farming if the son is to make much of a success in operating the home farm. The influence of the homemaker is a real factor contributing to success on the farm.

The time gap. Another factor determining the desirability of keep-

¹ Summary of a talk presented at the University of Illinois Farm and Home Week, February 10, 1948.

ing the home farm in the family is the time gap or the length of time between retirement of the father and the age when the son or son-in-law needs to get started in farming. This is less of a question on a two-man farm than on a one-man farm because a father-and-son farm partnership could cover such a span on a two-man farm.

Summary. It would appear to be highly desirable to keep the farm in the family when —

1. The size and productivity of the farm is adequate
2. The son or son-in-law and wife really wish to continue on the home farm
3. A plan can be developed whereby the son or son-in-law can start farming when ready to do so
4. A satisfactory farm transfer plan can be arranged.

If the foregoing conditions prevail a strong case can be made for keeping the farm in the family. When the farm transfer has been arranged for in the proper manner —

1. It is a good way of helping young folks get started in farming
2. It should provide more security for the parents
3. It should provide more security for the farm-operating heir
4. It should keep the farm business in operation as a going concern and thus avoid the costly stopping and starting again every generation, which so often happens
5. It should provide for greater continuity and stability for our farms.

How May the Transfer Be Best Made?

Once it is decided that "keeping the farm in the family" is a good idea for a particular farm and family, the next question is, how may it be done most effectively?

Keeping the farm in the family is a continuous process and may even start in 4-H Club Work and in a Future Farmers farm project. The next logical step would be a father and son farm partnership. Then if all is still going well on the home farm, the time has arrived to discuss ways and means of really keeping the farm in the family. For this step it is necessary to reach some agreement as to the future ownership of the home farm by the son and his wife.

Father-and-son farm partnerships versus father-and-son farm property agreements. It is always recommended that these two types of agreements be kept separate. The father-and-son farm partnership is simply a plan for the operation of the home farm as a going concern. The property agreement is a plan for transferring the farm and keeping it in the family.

Strive for an Effective Transfer Arrangement

Keeping the farm in the family is desirable only when it is possible to work out an effective transfer arrangement. Such a plan should provide for —

1. Reasonable security of the parents
2. Reasonable security of the farm-operating heir and his family
3. Equitable treatment of the other heirs
4. Transfer of the farm as a going concern.

Faulty transfer arrangements for farms have been all too common in many farming communities. With poor transfer arrangements uncertainty is created and —

1. The farm loses and becomes run-down
2. The parents lose
3. The farm-operating heir loses.

Methods of Keeping the Farm in the Family

The usual methods of keeping the farm in the family are as follows —

1. Inheritance
2. Deed with life lease
3. Wills which may give, divide or sell
4. Sales and contract arrangements
5. Incorporation of the farm business.

Inheritance (Transfer after death)

If no will or contract exists to the contrary, the farm where the title is in the name of the husband will upon his death by laws of descent in most states go to the wife and the children. In general, if only one child the estate or income therefrom goes one-half to the wife and one-half to the child. If more than one child then the wife receives one-third and the children two-thirds.

If, however, the farm is owned by husband and wife by joint deed (estate by the entirety) then upon the death of either party the farm would go to the survivor in its entirety. The laws of inheritance would then not operate until the death of the survivor. Where there is more than one heir this form of transfer by inheritance is not satisfactory for the heir who wishes to continue to operate the home farm; the heir has uncertain tenure.

Deed with Life Lease (Transfer before death)

Giving a deed with life lease has occasionally been used to transfer property from one generation to the next within the same family.

It is not generally recommended. In this case the parent or parents

have in effect transferred by deed to the farm-operating son their interests in the farm, subject of course to a life lease. The parents by this procedure lose much of the security which their farm could provide for them. Additional complications develop in case anything should happen to the son previous to the death of the parents.

Wills (Transfer after death)

A will provides an opportunity for the parent or parents to say how their estate shall be settled upon their death. Its main advantage is that the title to the property and thus all rights to the property remain in the hands of the parents during their lifetime. Its main disadvantage from the standpoint of the farm-operating son is that the will may be changed at any time thus creating for him much uncertainty and insecurity.

A will may be so written as to give, sell or divide the farm as the owner sees fit. If there is only one heir the will is usually written in terms of a gift. If there is more than one heir the will may be written so as to either divide or sell the farm.

A common practice is to reach an understanding with the heirs and will the farm to the son who is to operate the home farm, upon payment of certain sums to the other heirs. It is to the best interest of all concerned in such instances to indicate that the son to receive the farm will have a certain period, for example 10 or 15 years, in which to pay off the other heirs.

Transfer by means of a will to the farm-operating son is often not a very satisfactory method of transfer from the standpoint of the son. Before the actual transfer, the will does not provide him with much security as to his future equity in the farm. In the first place, the will may be changed at any time by the maker. In the second place the provisions of the will often do not become effective early enough in the life of the farm-operating son to be of real value to him.

Sales and Other Contract Arrangements (Transfer before death)

One of the simplest transfer arrangements for the home farm is to sell it to the son. Either a sales agreement with a mortgage or a land contract will do the job. A land contract may be used if the son cannot pay down at least 25 percent of the purchase price. In such transactions the farm price should be at its long-time productive value from an agricultural standpoint.

The sales contract often provides the best means of transferring the farm from father to son. It can provide the maximum amount of security for both the parents and the farm-operating heir. It also enables the parents to "cash in" on their life earnings during their old age.

A contract to transfer the farm upon death of the surviving parent could also be drawn. Usually this would involve monthly payments by the son to the parents and the providing of other items such as a comfortable home and living and any other specified items. In such a case, the cash payments would be less than they would normally be if no other considerations were involved.

Summary

If it is desirable to keep the farm in the family the following procedure provides some good suggestions as to how to do the job. Keep in mind that this is one of those "once in a lifetime" jobs and needs to be done right if it is to succeed. The suggestions are as follows:

1. Give early consideration to your farm property transfer arrangement
2. Develop your own ideas as how best to do the job
3. Consult with the son who is to operate the home farm
4. Consult with the other heirs
5. Consult with a lawyer to put your plan in written form.

E. B. HILL¹

¹ Professor of Farm Management, Michigan State College.

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. Converted from 1926 = 100 to 1935-39 = 100 by multiplying by 1.240694 for col. 1, and 1.315789 for col. 2. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-39 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.

H. P. Rusk

Director, Extension Service in
Agriculture and Home Economics

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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period..	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1939	1935-39	
1933.....	82	67	57	94	67	68	75	69	54	69
1934.....	93	86	76	100	79	73	74	80	70	75
1935.....	99	104	102	101	89	86	85	86	80	87
1936.....	100	107	105	100	105	109	110	101	93	103
1937.....	107	113	118	104	111	116	112	107	111	113
1938.....	98	91	90	98	96	107	109	100	85	89
1939.....	96	86	84	97	99	107	110	107	100	109
1940.....	97	89	89	98	105	114	116	115	114	125
1941.....	108	108	112	103	140	146	140	138	168	162
1942.....	123	138	141	117	193	200	169	175	245	199
1943.....	128	162	165	127	244	241	190	216	334	239
1944.....	129	163	165	132	255	240	182	240	346	236
1945.....	132	168	171	136	270	248	182	248	293	203
1946.....	150	195	204	151	308	302	200	254	266	170
1947.....	189	238	265	181	378	386	213	281	324	187
1948.....	205	248	275	195	390	383	197	306	365	192
1948 Mar....	200	245	274	194	285	303	157	297	358	191
Apr.....	202	246	278	195	308	328	168	298	347	188
May.....	203	249	276	195	313	330	169	300	347	192
June.....	206	258	292	196	360	368	188	305	359	192
July.....	209	257	297	196	404	479	245	307	360	186
Aug.....	210	251	289	196	409	329	168	311	375	191
Sept.....	209	250	285	195	471	333	171	313	382	192
Oct.....	205	241	255	195	558	550	282	314	383	195
Nov.....	203	238	239	193	497	443	229	315	379	195
Dec.....	201	233	237	194	411	410	211	317	378	192
1949 Jan....	199	227	231	194	356	388	200	314	363	191
Feb.....	196	221	219	191	266	303	158	312	358	189
Mar.....	196	225	226	192	293	346	180	310	...	184

TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			May 1948	Current months, 1949		
	1935-39	1947	1948		March	April	May
Corn, bu.....	\$.66	\$1.90	\$1.89	\$2.19	\$1.18	\$1.22	\$1.23
Oats, bu.....	.31	.97	.94	1.11	.68	.68	.63
Wheat, bu.....	.86	2.45	2.23	2.27	2.09	2.10	2.07
Barley, bu.....	.62	1.59	1.58	1.85	1.15	1.15	1.10
Soybeans, bu.....	.90	3.28	3.20	3.83	2.13	2.08	2.19
Hogs, cwt.....	8.52	24.50	23.86	20.10	20.50	18.70	18.10
Beef cattle, cwt.....	7.88	20.48	24.74	26.90	21.10	21.60	21.90
Lambs, cwt.....	8.36	21.31	23.44	22.50	25.20	27.00	26.60
Milk cows, head.....	58.00	173.33	194.17	190.00	205.00	200.00	195.00
Veal calves, cwt.....	8.66	23.08	27.16	27.09	26.60	28.00	24.80
Sheep, cwt.....	3.58	7.39	8.93	9.00	9.90	10.20	10.60
Butterfat, lb.....	.27	.69	.73	.76	.59	.57	.57
Milk, cwt.....	1.68	3.95	4.46	4.35	3.50	3.25	3.05
Eggs, doz.....	.19	.41	.42	.37	.38	.39	.40
Chickens, lb.....	.15	.27	.30	.29	.32	.33	.30
Wool, lb.....	.25	.42	.42	.42	.41	.41	.42
Apples, bu.....	1.08	2.72	2.33	2.00	3.20	3.50	3.65
Pears, ton.....	9.39	16.88	20.64	20.20	20.60	20.50	20.00
Potatoes, bu.....	.91	1.91	2.00	2.00	2.00	2.15	2.15

1-12 For sources of data in tables see preceding page.

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ILLINOIS FARM ECONOMICS

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CURRENCY DEVALUATION IN POSTWAR ADJUSTMENTS

Should the British pound be devalued? This is only one of the questions of currency revaluation which has been in the forefront recently in the problems of postwar readjustments of balances of international payments. According to press reports, United States authorities have urged the British to devalue their currency. Apparently the government of Britain has decided not to devalue the British pound sterling in the near future, at least. Nevertheless the whole problem of the readjustment of international payments is still unsettled and the possibilities and effects of currency revaluation remain to be reckoned with in many quarters. It is having and will continue to have important repercussions in the foreign demand for farm products.

The "dollar shortage" has been a serious problem in many countries. It is the result of those countries buying more goods in the United States than they sell to us. In 1946 the value of United States exports of goods and services amounted to 15 billion dollars, approximately half of which was paid for by imports of goods and services. In 1947 exports increased in value (partly because of price increases) to 20 billion dollars, and although there was also an increase of imports they amounted to little more than 40 percent of the exports. Since the first half of 1947, however, United States exports have decreased and imports increased. In the first quarter of 1949 imports of goods and services were valued at 62 percent of exports.

Throughout the postwar period a large share of our exports of goods

Articles in *Illinois Farm Economics* are based largely upon findings of the Agricultural Experiment Station.

and services has been financed by United States Government grants and loans to foreign countries. A considerable, though smaller, part has been financed through the sale to the United States of gold and "dollar assets" of foreign countries. Such sales were especially important in 1947, but as the gold reserves and dollar assets of the foreign countries have dwindled those countries have been under greater pressure to increase their exports or decrease their imports. The problem is how to restore a balance of international trade.

For any country with a competitive, private enterprise economy, devaluation of its currency tends to increase exports and decrease imports. An explanation sometimes given is that prices of goods produced within the country tend to remain about the same in the depreciated currency as they were previously. This means, of course, that such goods are cheaper in terms of the undepreciated currency of other countries. Consequently, the country whose currency has depreciated will be a more favorable market in which to buy, and other countries will increase their imports from it. On the other hand, prices of goods produced in other countries will tend to remain about the same in terms of their currencies. This will involve an increase in their prices in terms of the depreciated currency. Consequently, imported goods will rise in price in a country whose currency depreciates and imports will be reduced.

This is an oversimplified explanation. It ignores important differences between various types of commodities. Some commodities have flexible prices which change readily with shifts of the conditions of demand and supply. Others have relatively rigid or "sticky" prices which change only slowly in response to changes in demand and supply conditions. Furthermore, the relative importance of the country whose currency depreciates and of other countries in the production and the consumption of different commodities greatly influences the way in which prices change following currency depreciation. Nevertheless, the oversimplified explanation given above serves as a useful starting point to understand the effects of such depreciation.

It is important to recognize that currency depreciation may have important effects upon the internal price structure of a country in addition to its effects upon prices of import and export commodities. Generally speaking, it may be said that among the products produced within the depreciating country, the flexibly-priced commodities tend to rise more rapidly than the inflexibly-priced commodities.

In case of export commodities, a flexibly priced commodity rises rapidly in price, but the volume of exports, other things being equal, changes but little. An inflexibly priced export commodity, on the other hand, changes but little in price in terms of the depreciated currency, but

the quantity exported tends to increase greatly. Flexibly priced commodities which are on a domestic basis, however, will not rise as rapidly as will international commodities, because their demand (in terms of the depreciating currency) will increase only about as rapidly as wage payments and other consumer incomes increase. Wage rates are relatively inflexible so that wage payments increase rapidly only in case the depreciation results in a rapid rise in employment and production.

An example of some of the varying effects of currency devaluation on prices is afforded by the experience of the United States during 1933. Prices of steel, automobiles, and many other products which were "administratively priced" rose very little, whereas prices of wheat and cotton followed closely the rising price of gold. On the other hand some flexibly priced commodities such as hogs and cattle also rose only slowly because they were not influenced directly through foreign demand and supply conditions and the declining value of the dollar in foreign exchange. A comparison of selected prices and wage rates in February of 1933 and 1934 is shown in Table 1.

At the time the depreciation of United States currency was being discussed, late in 1932 and early in 1933, some people argued that such depreciation would be useless because the United States was *not* experiencing an adverse balance of payments. This argument, however, failed to take account of the effects of currency depreciation on the internal structure of prices. We were then in the depths of a serious depression, and the price structure was badly out of balance. Prices of the flexibly priced commodities were abnormally low relative to those of the inflexibly priced commodities. The depreciation of the dollar relative to gold and the currencies of other countries tended to return the price structure to a more nearly balanced condition.

The situation facing England and a number of other foreign countries today is very different from that of the United States in early 1933. What

TABLE 1. — CHANGES IN SELECTED PRICES AND WAGE RATES IN THE UNITED STATES DURING DOLLAR DEVALUATION

	Feb., 1933 Dollars	Feb., 1934 Dollars	Feb., 1934, as a percent of Feb., 1933
Wheat, No. 1 Dk. Nor. Spring Mpls., per bu.....	.50	.90	180
Corn, 3 yellow, Chicago, per bu.....	.23	.49	213
Cotton, middling, $\frac{3}{4}$ inch, New Orleans, per lb.....	.059	.121	205
Beef steers, all grades, Chicago, per cwt.....	4.80	5.49	114
Copper, ingot electrolytic, per lb.....	.048	.078	162
Bituminous coal, mine run, per ton.....	3.56	3.97	112
Pig iron, Bessemer, Pittsburgh, per ton.....	16.89	19.76	117
Structural steel at mills, per 100 lbs.....	1.60	1.70	106
Nickel ingot, New York, per lb.....	.35	.35	100
Automobiles, weighted ave. list price, 6 makes, f.o.b. factory.....	671.00	736.00	110
Wage rates, average hourly earnings in 25 manufacturing industries	.462	.558	121

England and a number of other foreign countries now need is to improve their balances of international payments by increasing the total value of their exports relative to the total value of their imports. Most of these countries have recently been going through a period of price inflation. There is a tendency for the flexibly priced commodities to be too high relative to the inflexibly priced commodities. Hence, in considering the advantages and disadvantages of currency depreciation the possibility of worsening their situation through causing unfavorable price dislocations must be weighed against the possibility of improving their international trade balances.

Whether or not depreciation of a country's currency will improve its balance of payments depends in part upon the elasticity of demand for its imports and exports. A commodity has an elastic demand if the total value of a large quantity is more than the total value of a smaller quantity. If the demand for a commodity is very inelastic the amount demanded will change very little even with a large change in its price. For import commodities which have an inelastic demand, raising the price of those commodities in the depreciating country will have little influence on the amount imported and hence on the amount of foreign exchange necessary for its purchase. For export commodities with an inelastic demand, lowering the price in foreign currencies through depreciating the currency of the exporting country will decrease rather than increase the amount of foreign exchange obtainable from the exports. Since most of Britain's imports are foodstuffs and raw materials, it would seem likely that the demand for her imports is rather inelastic and this would limit the success of currency devaluation. In case of Britain's exports, on the other hand, it seems likely that the demand is elastic — insofar, at least, as free market conditions exist. This situation is favorable to the success of devaluation in increasing the value of exports.

It must, however, be borne in mind that in the world today international trade is not being carried on upon a thoroughly competitive, private enterprise basis. There are not only tariffs, but there are many instances of quotas or exchange restrictions which may interfere with the possibility of any country increasing its exports through depreciating its currency. Under such circumstances there may be serious doubt as to whether any particular country can materially increase the volume, much less the value, of its exports through depreciating its currency.

Then, too, there are questions of internal social and political stability which must be considered. In England recently the politically powerful labor unions demanded that rising prices be halted and that wages be raised. Actually, there has been little rise in the cost of living and in retail food prices over the past year in the United Kingdom. The latest

figures available indicate only about a 10 percent rise since June of 1947 in both the cost of living and retail food prices. A depreciation of the pound sterling would undoubtedly result in an increase in the cost of imported foods and hence in the cost of living in Great Britain unless its effect were counterbalanced by government subsidies to keep prices down. It would make more difficult the situation of "white collar" workers and some other groups in Britain whose incomes have not increased as much as the cost of living in recent years.

With Great Britain operating an economy which is in the twilight zone between a free economy and a controlled economy, and relying very heavily upon imports of food and raw materials, there is the serious question whether currency depreciation offers the best means or even a desirable means of obtaining more nearly a balanced international trade.

Some countries, notably France and Mexico, have depreciated their currencies during the past ten years. In the case of French francs, much of the depreciation took place prior to and during the war. In 1937 the average value of the franc was 4.0 cents, but in 1939 it had fallen to 2.5 cents and by 1945 to 2.0 cents. Recently the "free" francs have been quoted at approximately .3 of a cent.

The Mexican peso, which was maintained at about 20 cents throughout the war, was recently revalued at about 11½ cents. This revaluation was accomplished in the attempt to meet the shortage of dollars in Mexico and restore her balance of international trade. As a result, Mexico has become a cheaper place for American tourists to live and travel, and imports of United States products have been discouraged through making their prices higher in terms of Mexican money. The devaluation, in this case, promises to be fairly effective as an aid to balancing Mexican imports and exports.

Whether Britain attains a balance of her international payments partly through a readjustment of the foreign exchange value of her currency or without such a readjustment may make little difference to American farmers in the next few years. It is clear, however, that in order to meet their balances of international payments Britain and a number of other European countries must either reduce their imports or increase their exports. Since a large share of the imports of these countries normally consists of food and agricultural raw materials, it is presumably in the interest of American agriculture that they make the adjustment primarily by increasing their exports rather than by reducing their imports. This is the course to be expected under conditions of substantial freedom of international trade if the internal economies of the countries are directed primarily through private enterprise and competition. In the past government attempts to balance international payments through other means

have often been directed largely toward the reduction of agricultural imports and the subsidization of their domestic agricultural production. American farmers may well hope, consequently, that the future trend in foreign countries will be toward the lessening of governmental economic controls and the strengthening of private enterprise and competition. Revaluation of foreign currencies might well be a part of such a process, but if it is not, revaluation might merely constitute one of the various steps which are to be taken to reduce the foreign demand for agricultural products, and failure to revalue would merely mean that other measures were being taken to attain the same objective.

In any event, talk of devaluation and other evidences of difficulties which foreign countries are having in meeting their international balances of payments are indications that the period of abnormally high foreign demand for farm products may be about over. Except insofar as our exports are financed by grants and loans of the U. S. government they will be restricted by the ability of foreign countries to sell other goods to us.

E. J. WORKING

OPPORTUNITIES IN DAIRYING ON SOUTHERN ILLINOIS FARMS¹

This is the second in a series of articles that is being presented on farming opportunities in the rolling upland area of southern Illinois. They have been taken from a more inclusive study that has been conducted cooperatively by the Bureau of Agricultural Economics, United States Department of Agriculture, and the Department of Agricultural Economics, University of Illinois.

Farms in the rolling upland area of southern Illinois are typically small. Most of the land is suited to pasture and hay rather than intensive crops. To secure a satisfactory income from an upland farm an operator must:

1. Improve the land, thereby increase the yields of adaptable crops.
2. Raise dairy cattle, beef cattle, or sheep to consume the forage crops produced.
3. Carry on a farming program that will effectively utilize the available labor supply.

As a major enterprise dairy cattle are better suited to the average upland farm than any of the other grass-consuming animals, since most farms are too small to carry a large number of sheep or beef cattle. A large percent of the land is in grass; the area has comparatively mild winters and a long pasture season. A properly managed dairy herd and enterprises that can be handled in conjunction with it will yield a satis-

¹ Alexander, Hardin, Jackson, Johnson, Massac, Pope, Pulaski, and Union are the counties in the upland area.

factory income for the average farm family. Dairying will return a good income per acre, make effective use of farm labor, and help to maintain and to improve the fertility of the soil.

The current dairy situation in the area was ascertained by observation, from the census, and from a dairy enterprise survey of ten farms in Johnson County having more than an average number of cows. Typical herds of from one to three cows provide milk for use in the home and on the farm, and a small quantity of cream that is sold through the local cream-buying stations. For the most part low production per cow can be attributed to a lack of good breeding and improper feeding. Most herds are too small to merit purchasing a good bull, and very few farmers have bought good bulls cooperatively. Breeding has been to whatever bull was available and, as a result, large numbers of cows used for dairying purposes are crosses between beef and dairy types. Undersized animals cannot consume enough feed above that required for maintenance to produce large quantities of milk. According to the U. S. Census of 1945, the average butterfat production for the area was only 140 pounds per cow.

Farms surveyed. Data from the ten farms surveyed are presented in Table 1. Most of the cows on the farms were mixed breeds, but individual cows seemed to have a larger proportion of dairy breeding than those on the average farm in the area.

Mixtures of lespedeza and redtop or wild grasses were generally used for hay and pasture. Most of the hay and pastureland was unimproved; therefore, more acres per cow were required than would be necessary with an improved land-use plan. In most cases buildings were adequate but not elaborate.

Survey herds averaged 6.9 cows; the smallest number per farm was three and the largest twelve. The average cow consumed 2.6 tons of hay and grazed on 5.7 acres of pasture, most of which was unimproved.

TABLE 1. — AVERAGE PRODUCTION FACTORS, TEN DAIRY HERDS, FROM OCTOBER 1, 1945 TO SEPTEMBER 30, 1946, JOHNSON COUNTY, ILLINOIS

Item	Average of ten farms	Range	
		Low	High
Number of cows milked.....	6.9	3	12
Butterfat produced per cow (pounds).....	192	131	227
Production, April-October (percent).....	73	67	88
Feed per cow:			
Grain (pounds).....	919	0	2,228
Hay (tons).....	2.6	1.6	3.0
Pastures (acres)*.....	5.7	2.6	10.0
Cattle sales:			
Number of veal calves.....	2.8	0	8
Number cull cows and others.....	1.2	1	4

* Pasture days could not be ascertained from the survey data.

Production averaged 192 pounds of butterfat per cow milked; nearly three-fourths of the production occurred in a seven-month period from April to October (Table 1).

Profitable production practices. An improved farm management program, including better feeding and breeding practices, and adequate equipment and housing, will lead to a higher farm income by increasing the average production per cow and the average number of cows per farm.¹

The basic step in improving the feeding program is the adoption of land improvement practices that are applicable. One dairy cow can graze on from 1.6 to 2.5 acres for 240 days, or longer, if rye is used to lengthen the pasture season. About 1.75 tons of good-quality mixed or legume hay is required per year.

Dairy production studies indicate that production of 200 pounds of butterfat per cow can be obtained without grain feeding, if the cows have good production capacity and if adequate pasture and high-quality legume hay are available. Profits from grain feeding for higher production depend very largely on relative prices of butterfat and grain feeds. Under normal price relationships grain feeding will increase profits.

Cows on non-grain rations should be so managed that they will freshen in January or February. If they are in good flesh when they freshen they will produce well on high-quality legume hay until pasture is ready in March or April. Good pasture will sustain production throughout the summer and into the fall. Compared to the farms surveyed, this system will produce more milk in the winter months when prices are higher.

Cows fed grain and legumes or mixed hay should freshen in October or November. Under this system the bulk of the milk is produced during the fall, winter, and spring months and cows are dry during the hottest part of the summer when pastures produce the least. This system also provides a good supply of skim milk for laying hens and hogs during the winter months.

Upland farmers now have an opportunity to increase the producing capacity of their herds by the use of artificial insemination. Service from artificial breeding associations is available to all farms in the upland area. Farmers with small herds can now afford artificial breeding although they cannot afford a well-bred bull. An extra cow can be kept on the feed it takes to keep a bull and will provide enough income to breed eight to ten cows artificially.

Most farms do not have the facilities necessary to preserve the quality of milk. Farmers that produce cream can usually keep it in salable condition by using cellars, cisterns, wells, springs or other cooling facilities found on the farm and by selling it often. Farmers producing whole milk

¹ For a recommended program see Illinois Agricultural Extension Service MP-1, A Six-Point Dairy Program for Southern Illinois.

should consider purchasing a cooler. There are several gas and electric coolers on the market that sell for from \$200 to \$400. A premium of approximately 15 cents per hundredweight is paid for cooled milk. This is enough to pay for a cooler in about five years with a ten-cow herd.

Suggested adjustments for a typical farm. The advantages of building a farming program around the dairy enterprise can be demonstrated by considering a specific farm. Tables 2 and 3 summarize the current farming program on a typical 122-acre upland farm and a suggested program for the same farm after the land has been improved. Seventy-six acres of this farm are cleared land, usable for crops and pasture. According to capability classes, only 9 of the 76 acres are adapted to a four-year rotation with one year of corn: the remainder is hay and pasture land (Tables 2 and 3).

Under the present system the farm produces seven acres of corn, 16 acres of hay and 53 acres of cleared pasture. Livestock includes two milk cows, six beef cows, two head of work stock, 60 hens, and one litter of pigs. The entire farming program provides 119 man-work units per year and returns \$499, with products valued at prewar prices (Tables 2 and 3).

In the suggested plan the entire 76 acres will be used for pasture and

TABLE 2.—CURRENT AND SUGGESTED LAND-USE AND LIVESTOCK PROGRAMS
WITH LABOR REQUIREMENTS FOR A TYPICAL UPLAND
FARM IN JOHNSON COUNTY, ILLINOIS

Item	Current plan		Suggested plan	
Land-Use Program				
	<i>Acres</i>	<i>Production</i>	<i>Acres</i>	<i>Production^a</i>
Crop and unit:				
Corn (bushels).....	7	150	..	...
Hay, lespedeza mixture (tons).....	16	17	..	...
Hay, alfalfa timothy (tons).....	..	...	20	45
Pasture, lespedeza mixture (a.u. days) ^b	53	2,445	56	5,762
Meadow pasture (a.u. days) ^b	(16)	268	(20)	900
Total.....	76	...	76	...
Livestock Program				
	<i>Number</i>		<i>Number</i>	
Milk cows.....	2		18	
Beef cows.....	6		..	
Hogs raised.....	7		7	
Hens.....	60		200	
Work stock.....	2		2	
Labor Requirements ^c				
MWU ^d	119		377	
Increase in MWU ^d.....	...		258	

^a University of Illinois Department of Agronomy. Estimates based on experimental results at Dixon Springs Experiment Station and adapted to land classes in Johnson County.

^b A.u. = animal unit.

^c Adopted from labor requirements reported by experiment stations in Illinois, Kentucky, and Missouri.

^d MWU = man-work units.

TABLE 3. — GROSS INCOME, CASH EXPENSES, AND NET RETURNS FOR A TYPICAL UPLAND FARM, JOHNSON COUNTY, ILLINOIS

Item	Current plan		Suggested plan	
	Quantity	Value	Quantity	Value
Gross income ^a				
Cull cows, number.....	1	\$ 50	4	\$ 240
Yearling heifers, number.....	...	...	1	50
Veal calves, number.....	...	...	11	165
Grass calves, number.....	6	240	...	...
Hogs, number.....	7	147	7	147
Cull hens, number.....	36	27	170	128
Chickens, number.....	45	22	225	112
Eggs, dozen.....	560	118	2,240	470
Butterfat, pound.....	260	75	3,275	950
Total.....	...	679	...	2,262
Cash expenses ^b				
Seed, pounds.....	128	12	258	39
Limestone, tons.....	5	12	23	57
Phosphate, tons.....	1	7	8	76
Commercial feed, cwt.....	32	74	34	74
Grains, cwt.....	39	55	251	351
Baby chicks, number.....	100	8	500	40
Miscellaneous.....	...	12	...	25
Total.....	...	180	...	662
Net returns ^c.....	...	499	...	1,600
Increased returns per added MWU.....	...	...	...	4.27

^a Includes products sold and used in the household. Values used are based on 1936-1942 Illinois prices adjusted to Johnson County conditions.

^b 1946 prices adjusted to Johnson County conditions.

^c Gross income minus cash expenses. This figure should not be confused with farm earnings. To ascertain farm earnings an adjustment would have to be made for change in inventory and the value of unpaid family labor would have to be subtracted. Net returns is the amount of money available for family living; taxes; machinery, fence and building repair; and the payment of interest and principal on borrowed funds.

hay production. Analysis of typical upland farm situations in the area indicates that a grain-growing rotation is generally impractical on farms of this size, with only nine acres adapted to grain production. In the suggested land use and fertility program soil conservation practices will be used where needed, three to four tons of limestone and approximately 1,000 pounds of rock phosphate will have been applied per acre, the land to be used for hay will be seeded to alfalfa and timothy, and the land to be used for pasture will be seeded to a lespedeza mixture. This program will increase hay production from 17 tons of lespedeza to 45 tons of alfalfa, and pasture production from an estimated 2,445 to 5,762 animal-unit pasture days (Table 3).

In the suggested plan a herd of good grade dairy cattle will replace the mixed bred cows that are milked on the farm at the present time. Based on standard feed requirements the suggested plan will provide hay and pasture for 18 milk cows plus replacement heifers. Since this farm does not produce grain, no grain will be fed to the cows and production is assumed at 200 pounds of butterfat per cow. No change is suggested in numbers of hogs or work stock. The poultry flock is increased from 60 to 200 hens, an economic-sized flock that can be cared for with available labor.¹ This program will increase man-work units from 119 to

¹ See Bailey, Warren R., and Wills, J. E., "Opportunities in Poultry on Southern Illinois Farms," *Illinois Farm Economics*, Nos. 151 and 152.

377, and at prewar prices it will increase returns by about \$1,100. For each added man-work unit there will be an increase of \$4.27 in returns. The dairy enterprise accounts for approximately 63 percent of the total gross income, and for over 70 percent of the man-work units used on the farm (Tables 2 and 3).

The preceding analysis is for a particular farm situation. In extent and quality of land resources it is typical of many farms in the rolling upland area of southern Illinois. With soils at present levels of productivity, and with present farming systems and practices, these farms do not provide a satisfactory living to the farm family.¹ A well-managed dairy enterprise, using the forage produced under an improved land-use program, is a practical way of increasing the income of such farms to the point where they do provide a satisfactory living. For the farm analyzed, the increase in man-work units under the suggested plan is of particular significance. The dairy herd, and the larger poultry flock to a less extent, roughly triples the man-work units employed on the farm. And, at prewar prices, the increase in net returns pays over \$4 each increase of one man-work unit. Although this is not a high wage for a day's work, it is enough to justify the program.

On rolling upland farms with larger acreages, or with more land suited to grain production, farming systems other than the dairy plan suggested in the analysis offer equal or greater economic opportunities. It should also be pointed out that the plan as suggested could be profitably changed for the same farm under particular situations. The plan represents a basic step toward the optimum use of resources, not necessarily a final goal. In this connection there are a number of possibilities.

In the first place the pasture program outlined is based on improved lespedeza-grass mixtures. While this program greatly increases the number of cows that can be carried, continued land improvement and more productive pasture crops offer opportunity for still greater carrying capacity.

Secondly, the dairy feeding system outlined is an all-forage system. Although the analysis indicates that this is a practical system, feeding grain would increase production per cow, and net returns per farm.

Finally, it is assumed in the suggested plan that butterfat rather than whole milk will be sold. Most farmers in the rolling upland area do not sell whole milk. The whole milk market is expanding in the area, however, and this outlet will add to the income opportunity.

W. R. BAILEY
J. E. WILLS
A. J. CROSS

¹ Operators of such farms frequently obtain a considerable part of their income from work off the farm.

LARD PRICES AFFECT HOG PRICES

In recent months the price of lard has been much lower in relation to hog prices than it has been for any period of time previously. Figure 1 shows this relationship and how the price of lard has been declining in relation to hog prices.

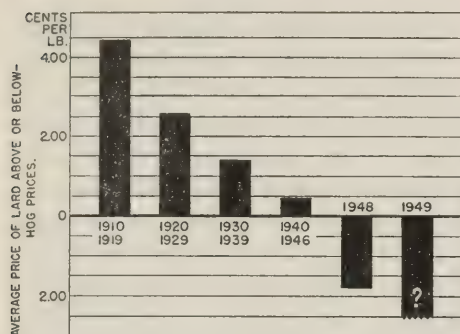


FIGURE 1.—RELATION OF LARD PRICES TO HOG PRICES, U. S., 1910-1949

The amount of lard produced in relation to the amount of pork varies with the size of the hog. Various studies show that as the size of the hog increases from 150 pounds to 300 pounds the dressing percentage increases. The amount of lard increases even more rapidly in relation to the amount of pork.

The pork cuts from heavy hogs are generally less desirable than those from the 180-

240 pound classes. So the pork from these heavier cuts sells for less per pound. But for comparison assume the composite price of pork cuts of all weight hogs is 28 cents a pound. Table 1 shows the live value per hundred for hogs with fat at various prices.

Thus as the difference between lard and live hog prices becomes greater, the greater is the need for buying hogs on the basis of carcass grade and weight. There has been a tendency in some areas to consider all hogs of equal value paying practically the same price per pound regardless of weight. If a buyer estimated the dressing percentage accurately he had done a good job. But with lard prices low in relation to live hog prices it is necessary to look at hogs from the standpoint of meat that will be produced. For example, if \$18 per hundred were the price for hogs weighing 200-300 pounds and lard was worth 10.5 cents per pound the buyer would be paying the equivalent of \$27.02 per hundred for the pork in the 200 pound hog and \$29.84 per hundred for the pork in the 300 pound hog.

TABLE 1.—LIVE VALUE PER HUNDRED FOR HOGS WITH VARIOUS VALUES FOR FAT
Assuming a price of 28 cents a pound for pork.

Weight	Value of fat per pound		
	0	10.5¢	18¢
200.....	\$16.80	\$18.58	\$19.86
225.....	16.17	18.32	19.85
250.....	15.46	18.06	19.92
275.....	14.66	17.72	19.90
300.....	13.44	17.12	19.74

There is considerable variation in hog values within any weight group based upon the difference in amounts of the high value cuts. However, one study shows that 45 percent of the variation in prices can be removed through doing a better job of selling hogs on a liveweight basis.

Production of lard in 1949. With the start of the 1948 spring pig crop to market in October 1948 there was a greater increase in lard production than in pork production over the corresponding week a year earlier. In the 31 week period October 16, 1948, to May 14, 1949, there were only six weeks in which lard production was about the same ratio to pork as a year earlier. In three weeks the ratio of lard to pork had been increased by over 20 percent and in 14 weeks from 11 to 20 percent. This increased ratio of lard to pork was brought about even though the average weight of hogs for the two periods was about the same. In all but two weeks lard production per 100 pounds of live hog was greater than a year earlier. During one-third of the period this production per 100 pounds live hog was over ten percent greater than a year earlier.

What is the future for lard? Normally most of the pork produced in the United States is consumed here. But it is necessary to move considerable lard through foreign markets. Lard is produced at the rate of one pound to each four and one-half pounds of pork and in recent years it has been consumed at the rate of about one pound to six pounds of pork.

To improve their situation hog growers today are faced with three alternatives:

1. Increase per capita consumption of lard through expanding present uses and finding new uses.
2. Increase foreign demand for lard — that is, desire to buy plus ability to buy.
3. Produce a type of hog with more meat and less lard.

For this last point to prove effective in areas where competition among buyers is inadequate farmers would find it desirable to have their hogs purchased on the basis of carcass grade and weight or some other effective measure of quality. Another factor will be an appreciation of the difference in income possible through producing hogs at the prewar average weights with emphasis upon producing pigs weighing 190-225 pounds instead of the war and postwar average weights. The number of hogs needed to consume the same amount of corn would be increased by 12 percent if weights were reduced about 20 pounds. This 12 percent increase in number would give an increase in pork production of over four percent and a decrease in lard production of 17 percent. The favorable effect on hog prices of the decrease in lard production would presumably more than offset the unfavorable effects of the increased pork supply.

W. J. WILLS

VARIATIONS IN THE RATES OF POPULATION REPRODUCTION IN ILLINOIS, 1940

The birth rate or the rate at which population is added to society has long been of interest to both students of population and laymen. This interest is deserving since the birth rate, along with the death rate and migration, largely determines the growth and distribution of population. The literature of population is full of theories explaining the causes and possible consequences of population growth. Many of the early theories seem absurd in the light of the present knowledge of the forces and factors involved in explaining the differences in the rate at which various population groups reproduced. Data are now available that allow more precise measurements of fertility¹ for groups which are producing many children and those which are producing few children, and shed light on changes and trends that are in progress.

If continued over several generations, variations in the rate of reproduction of different groups can bring about fundamental changes in the characteristics and composition of a population. For example, the extremely high birth rates of the rural population, especially among the farm women, and low birth rates of urban women, are responsible for the common observation that a large majority of the residents of our cities are in reality rural.

The rate of reproduction of the various residential groups plays a dynamic role in causing social change. Knowledge of some of the more important differentials is essential for the intelligent formulation of policy and plans for any group in society. The trend in the rate of growth and size of the rural-farm and nonfarm population is very significant in the development of policies and plans for agriculture. Likewise, rural schools, churches, and other rural institutions are importantly affected by the future growth and distribution of population. City planners must interest themselves in population reproduction when making plans for zoning, housing, recreation, and other developments if they are to adequately meet long-time future demands.

This is a report of preliminary results from a more comprehensive study of differentials in fertility in Illinois. The fertility ratio has been used as the measure of reproduction. This ratio is widely used by students of population because of the many advantages it has over the crude birth rate and other measures. It is computed by relating the number of children under five years to 1,000 women in the child-bearing ages, usually 15-44 years of age. It is important to keep in mind that this ratio is influenced by three independent variables:² (1) the birth rate for specific ages of

¹ Fertility as used here means birth performed, that is, the number of children born.

² W. S. Thompson, *Ratio of Children to Women—1920*, U. S. Census Bureau Monograph VII (Washington, D. C. Government Printing Office, 1931), p. 16.

women; (2) the death rate of children under five years; (3) the age distribution of women in the child-bearing ages, 15-44 years. Thus the fertility ratio measures the effective fertility of the group to which it is related.

Computations of the fertility ratio have been made for the rural-farm, rural-nonfarm, and urban population in 1940 for the state and for each of the nine major type-of-farming areas. The present discussion is limited to population fertility among these three major residential groups by type-of-farming areas.

Table 1 shows a marked inverse relationship between the size of population aggregates and the fertility ratio. There is a consistent decline in the rate of reproduction as one moves through the residential categories of farm and urban areas. With one exception this same pattern prevails for each of these major residential categories within each type-of-farming area. In the truck and dairy (area 1) of the northeastern section the fertility ratio of the nonfarm population is higher than that of the farm or urban group. Available data do not allow a detailed analysis of the factors responsible for this variation. However, on the basis of studies of the suburban "fringe" population in other states, one might presume that this high rate among the nonfarm residents is largely a reflection of the movement of metropolitan residents into the open country and small communities. It has been apparent to students of population that the nonfarm population in the contiguous areas of large cities has been increasing at a relatively rapid rate. Additional study is needed to understand adequately the reproductive performance and increasing significance of this segment of the population.

The difference in the rates of reproduction of the farm and urban groups is striking. Reproductive rates of farm groups for the entire state were two-thirds greater than the rates of residents of cities and about ten percent greater than the nonfarm group. It appears that the differential in the rates of reproduction of farm and nonfarm population is diminish-

TABLE 1.—RATIO OF CHILDREN UNDER FIVE TO WOMEN 15-44 YEARS OF AGE BY MAJOR TYPE-OF-FARMING AREA AND RESIDENCE, ILLINOIS, 1940

Type-of-farming	Total all groups	Residential categories		
		Urban	Rural nonfarm	Rural farm
State total.....	280	247	370	410
Northeastern—Dairy and truck.....	242	237	358	348
Northwestern—Mixed livestock.....	319	274	387	402
Western—Livestock and grain.....	326	272	371	390
East central—Cash grain.....	319	269	355	398
West central—General farming.....	348	269	366	432
Southwestern—Wheat, dairy and poultry.....	319	281	351	397
South central—Mixed farming.....	372	294	419	439
Southeast—Grain and livestock.....	377	306	400	425
Southern—Fruit and vegetables.....	405	294	418	501

ing. The nonfarm population also had a significantly higher rate of reproduction than the urban: percentage-wise this was equal to 49.8 percent.

For all residential groups the highest rates of reproduction by types-of-farming areas are in the fruit and vegetable (405); grain and livestock (377); mixed farming (372); and general farming (348). The lowest rate of reproduction is in the dairy and truck (242) with other farming areas in an intermediate position. With minor exception this same ranking prevailed for each of the residential groups for each type-of-farming area.

A better picture of differences in fertility can be seen when the calculated fertility ratio is used in conjunction with a "replacement index." The replacement index is derived by relating the ratio of children to women in the observed population with a similar ratio computed from a stationary life table population. This latter ratio gives the number of children to women necessary to maintain a stationary population under conditions of the existing specific birth and death rates. Such an index reflects the adequacy of reproduction of a given group of women at a given time. The following illustration will show how this replacement index is computed. According to the life table population for Illinois, 1939-41, it is estimated that 356 children under five years of age are required for each 1,000 women 15-44 years to maintain the population stationary. The computed ratio for the total population in 1940 was 280. Thus when the computed ratio 280 is divided by the estimated ratio of 356 multiplied by 100 we get 79, which is the replacement index. An index of 100 means that there are just enough children under five years of age to each 1,000 women 15-44 years of age to replace the persons removed by death during the course of one generation. An index of more than 100 means that the present population is adding to the next generation by the surplus above 100. When the index is below 100 the present population is

TABLE 2.—ESTIMATED REPLACEMENT INDEXES FOR THE TOTAL, URBAN, RURAL-NONFARM, AND RURAL-FARM POPULATION BY MAJOR TYPES-OF-FARMING AREAS, ILLINOIS, 1940

Type-of-farming area	Total	Residential categories		
		Urban	Rural nonfarm	Rural farm
State total.....	79	69	104	115
Dairy and truck.....	68	67	101	98
Mixed livestock.....	90	77	109	113
Livestock and grain.....	92	76	104	110
Cash grain.....	90	76	100	112
General farming.....	98	76	103	121
Wheat, dairy and poultry.....	90	79	99	112
Mixed farming.....	105	83	118	123
Grain and livestock.....	106	86	112	119
Fruit and vegetable.....	114	83	117	141

failing to replace itself by the amount the index is below 100. It is necessary to bear in mind that the index relates to natural increase and migration does not occur, or that "out" and "in" migration is balanced.

The significance of the replacement index can best be illustrated by applying the computed indexes for 1940 to the urban and rural population of the state. In 1940 there were 5,809,650 persons in the urban population of the state. When the replacement index is applied to this group 4,008,659 survivors would remain in the succeeding generation. In the course of another generation these would be reduced to 2,765,975 persons; and by the end of the third generation 1,908,502 would be left. A similar calculation shows that the rural-farm population would increase their number to 1,472,362 from 968,103 in 1940 during the course of three generations and the rural-nonfarm population of 1,119,488 would be equal to 1,259,272. Since the present average length of a generation is slightly over 25 years, it is apparent from these calculations that in the space of 75-80 years the relative proportions in the urban and rural population of the state would be reversed if there were no migration into the cities. The large deficit in the urban replacement rate would cause the total population of the state to be significantly reduced, if left to its own reproductive performance.

The data presented in Table 2 are graphically shown in Figure 1. The rural-farm population was the only group reproducing an appreciable surplus for future population growth. Farm groups by major type-of-farming areas showed significant differences in the replacement indexes. In the dairy and truck region the index was below that needed for replacement through natural increase. At the other extreme, is the fruit and vegetable area with a surplus reproduction of 41 percent above replacement needs. In all type-of-farming areas, except the wheat, dairy, and poultry area (area 6), the rural nonfarm groups were reproducing above replacement needs. The indexes were highest for the mixed farming, grain and livestock, and fruit and vegetable areas with indexes of 118, 112, and 117, respectively. It is interesting to note that the urban population in all farming areas was failing to meet replacement needs. The range in the deficit was equal to 19 percentage points, from a low of 67 in the dairy and truck region of the northeast to 86 in the grain and livestock region of the southeast.

These data point to the fact that wide variations prevail in the extent to which the major residential groups were reproducing in 1940. While it is perhaps true that some changes have occurred in the rate of reproduction since 1940, it is necessary to keep in mind that some of the increases in the birth rate have been the result of high levels of employment, war, and economic conditions. Historically there has always been increases in

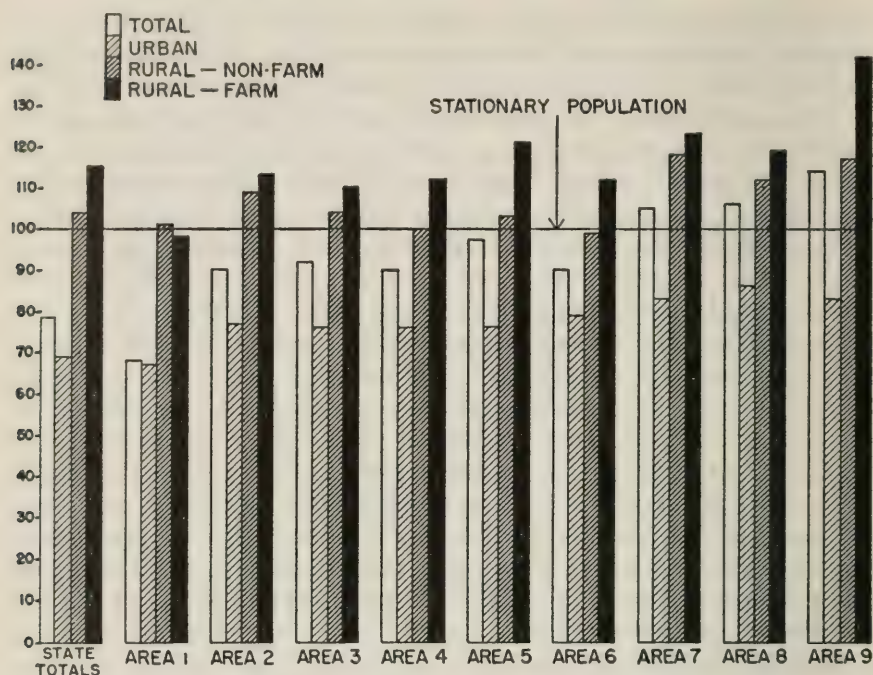


FIGURE 1.—REPLACEMENT INDEXES FOR THE TOTAL, URBAN, RURAL-NONFARM, AND RURAL-FARM POPULATION, BY MAJOR TYPES-OF-FARMING AREAS, ILLINOIS, 1940

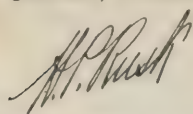
the birth rates under such conditions. These increases probably represent births "borrowed" from the future. That is, these increases may not be indicative of any permanent increases in the number of children the women in the child-bearing ages will have during their lifetime.

C. L. FOLSE

Footnotes for the last page:

¹⁻¹² The first source is for annual data; the second is for current data from which tables may be brought to date.

¹ Survey of Current Business, 1942 supplement, U. S. Department of Commerce; Subsequent monthly issues. Converted from 1926 = 100 to 1935-39 = 100 by multiplying by 1.240694 for col. 1, and 1.315789 for col. 2. ² Same as footnote 1. ³ Illinois Crop and Livestock Statistics, Circular 444 (1945); monthly mimeographs of Statistical Tables for Illinois Crop Report, converted from 1910-1914 = 100 to 1935-39 = 100 by multiplying by .8834. ⁴ Agricultural Prices, Bureau of Agricultural Economics, U.S.D.A. ⁵ Calculated from data furnished by Bureau of Agricultural Economics; Survey of Current Business, unadjusted. ⁶ Calculated by Department of Agricultural Economics, University of Illinois, unadjusted. Data on receipts from sale of principal farm products (government payments not included) from Farm Income Situation, Bureau of Agricultural Economics monthly mimeograph. ⁷ Obtained by dividing Index of Illinois Farm Income (column 6) by Index of Prices Paid by Farmers (column 4). ⁸ Same as footnote 5. ⁹ Same as footnote 1. ¹⁰ Federal Reserve Bulletin of Federal Reserve Board. ¹¹ Preliminary estimate. ¹² Illinois Crop and Livestock Statistics, Circular 444; Monthly price releases, State Agricultural Statistician.



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TABLE A.—INDEXES OF UNITED STATES AGRICULTURAL AND BUSINESS CONDITIONS

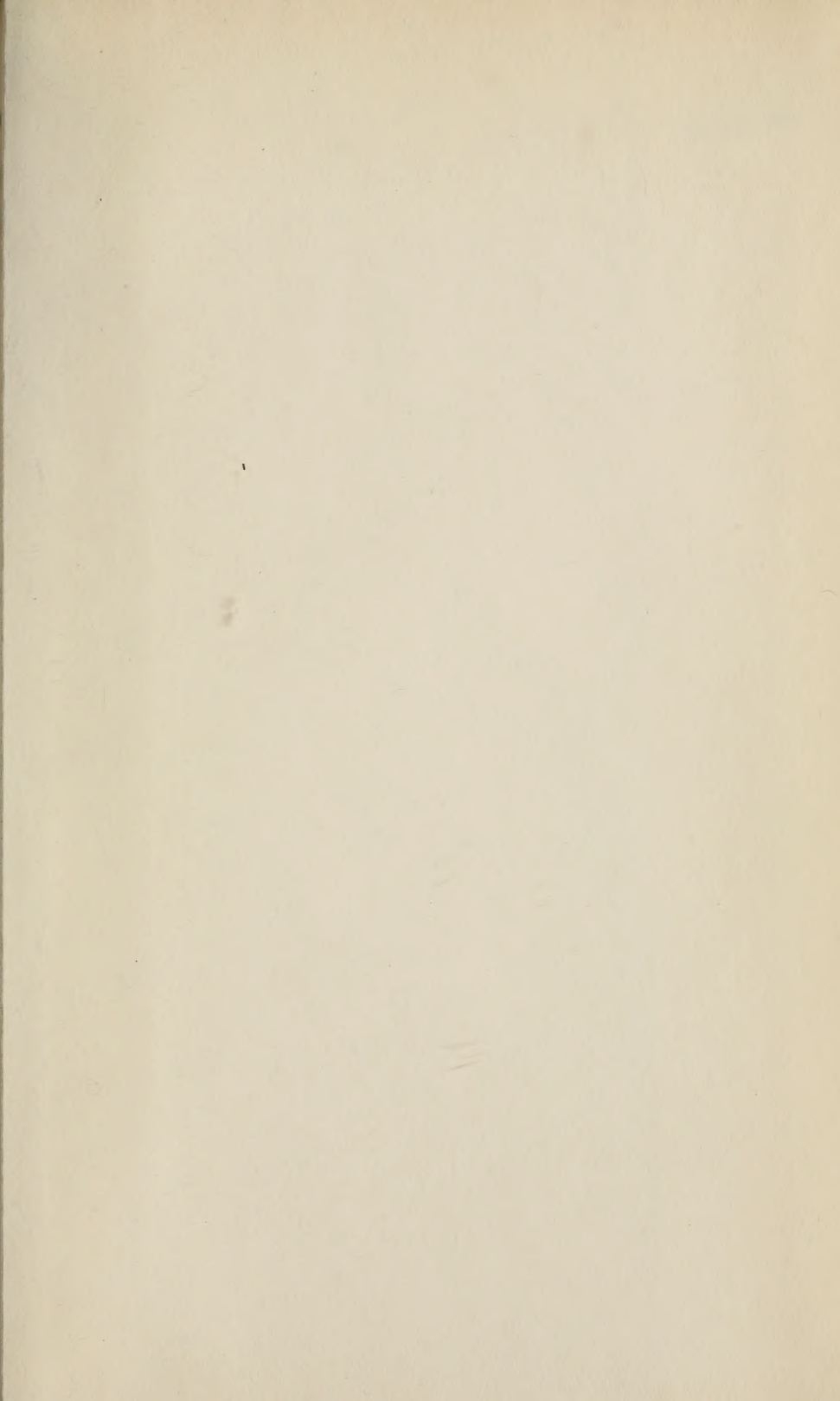
Year and month	Commodity prices				Income from farm marketings			Non-agricultural income payments ⁸	Weekly wages, all manufacturing industries, unadjusted ⁹	Industrial production ¹⁰
	Wholesale prices		Illinois farm prices ³	Prices paid by farmers ⁴	U. S. in money ⁵	Illinois				
	All commodities ¹	Farm products ²				In money ⁶	In purchasing power ⁷			
Base period...	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39	1935-39		1939	1935-39
1933.....	82	67	57	94	67	68	75	69	54	69
1934.....	93	86	76	100	79	73	74	80	70	75
1935.....	99	104	102	101	89	86	85	86	80	87
1936.....	100	107	105	100	105	109	110	101	93	103
1937.....	107	113	118	104	111	116	112	107	111	113
1938.....	98	91	90	98	96	107	109	100	85	89
1939.....	96	86	84	97	99	107	110	107	100	109
1940.....	97	89	89	98	105	114	116	115	114	125
1941.....	108	108	112	103	140	146	140	138	168	162
1942.....	123	138	141	117	193	200	169	176	245	199
1943.....	128	162	165	127	244	241	190	217	334	239
1944.....	129	163	165	132	255	240	182	242	346	236
1945.....	132	168	171	136	270	248	182	250	293	203
1946.....	150	195	204	151	308	302	200	255	266	170
1947.....	189	238	265	181	377	386	213	279	324	187
1948.....	205	248	275	195	390	383	197	303	365	192
1948 May...	203	249	276	195	313	330	169	299	347	192
June.....	206	258	292	196	360	368	188	303	359	192
July.....	209	257	297	196	404	479	245	306	360	186
Aug.....	210	251	289	196	409	329	168	309	375	191
Sept.....	209	250	285	195	471	333	171	311	382	192
Oct.....	205	241	255	195	558	550	282	310	383	195
Nov.....	203	238	239	193	497	443	229	310	379	195
Dec.....	201	233	237	194	411	410	211	311	378	192
1949 Jan...	199	227	231	194	356	388	200	310	363	191
Feb.....	196	221	219	191	266	303	158	308	358	189
Mar.....	196	226	226	192	293	346	180	308	349	184
Apr.....	195	224	224	192	274	321	167	309	336	179
May.....	193	225	220	191	...	309	162	308	...	174

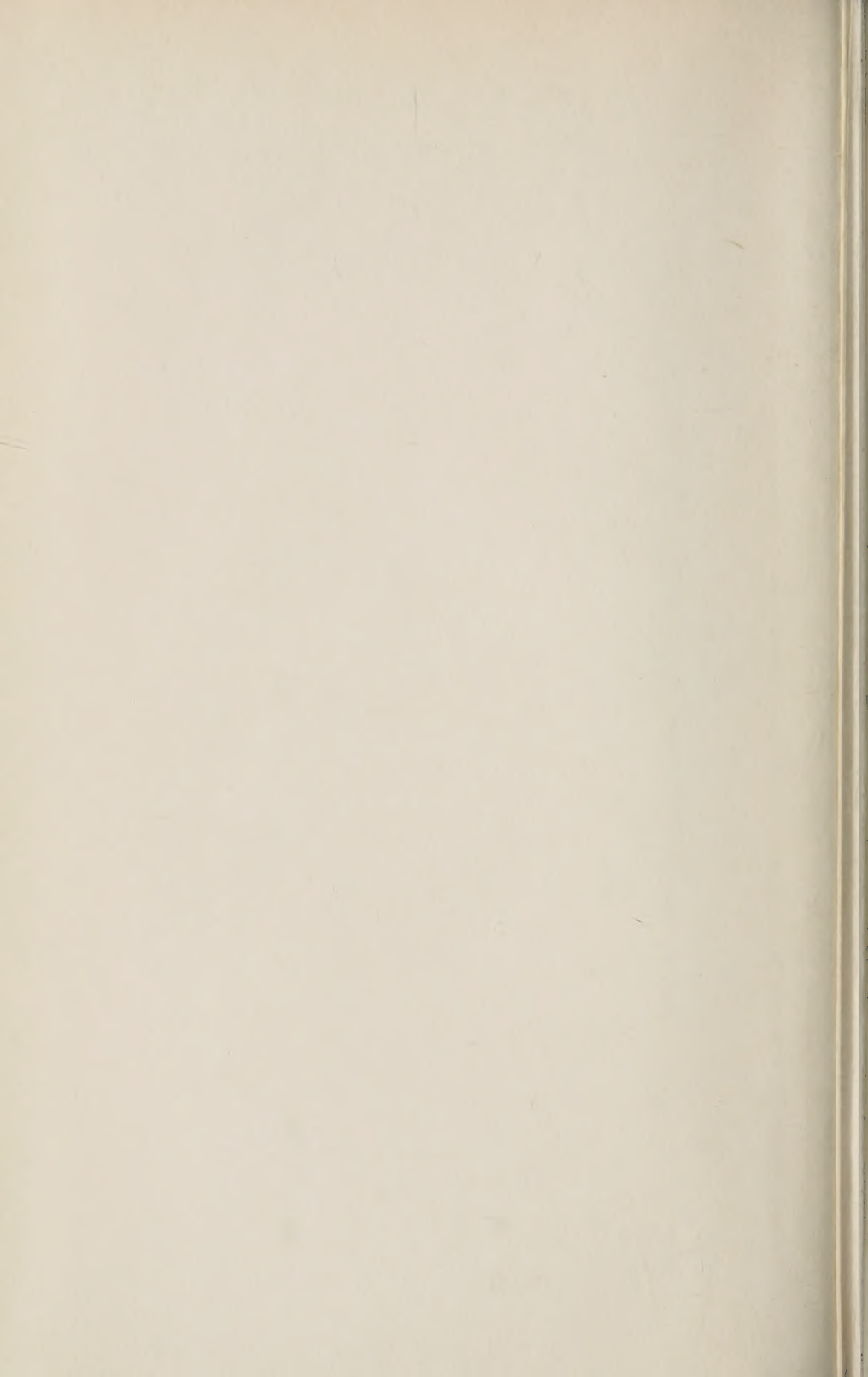
TABLE B.—PRICES OF ILLINOIS FARM PRODUCTS¹²

Product	Calendar year average			June 1948	Current months, 1949		
	1935-39	1947	1948		April	May	June
Corn, bu.....	\$.66	\$1.90	\$1.89	\$2.18	\$1.22	\$1.23	\$1.21
Oats, bu.....	.31	.97	.94	1.06	.68	.63	.57
Wheat, bu.....	.86	2.45	2.23	2.17	2.10	2.07	1.85
Barley, bu.....	.62	1.59	1.58	1.80	1.15	1.10	.90
Soybeans, bu.....	.90	3.28	3.20	4.00	2.08	2.19	2.10
Hogs, cwt.....	8.52	24.50	23.86	23.30	18.70	18.10	19.30
Beef cattle, cwt.....	7.88	20.48	24.74	28.00	21.60	21.90	22.70
Lambs, cwt.....	8.36	21.31	23.44	26.80	27.00	26.60	24.80
Milk cows, head.....	58.00	173.33	194.17	195.00	200.00	195.00	195.00
Veal calves, cwt.....	8.66	23.08	27.16	26.50	28.00	24.80	24.80
Sheep, cwt.....	3.58	7.39	8.93	9.50	10.20	10.60	8.40
Butterfat, lb.....	.27	.69	.73	.76	.57	.57	.55
Milk, cwt.....	1.68	3.95	4.46	4.30	3.25	3.10	3.00
Eggs, doz.....	.19	.41	.42	.38	.39	.40	.40
Chickens, lb.....	.15	.27	.30	.31	.33	.30	.28
Wool, lb.....	.25	.42	.42	.43	.41	.42	.42
Apples, bu.....	1.08	2.72	2.33	2.00	3.50	3.65	3.05
Hay, ton.....	9.39	16.88	20.64	19.10	20.50	20.00	16.50
Potatoes, bu.....	.91	1.91	2.00	2.00	2.15	2.15	2.05

¹²⁻¹² For sources of data in tables see preceding page.

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. H. P. Rusk, Director. Acts approved by Congress May 8 and June 30, 1914.





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